WASTE EXCAVATION PLAN

FTB-014 (SWMU-25) ORO GRANDE LANDFILL

FORT BLISS, NEW MEXICO

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LIST OF ABBREVIATIONS AND ACRONYMS

ACM	asbestos-containing materials
bgs	below ground surface
CAPE	Cape Environmental Management Inc
CFR	Code of Federal Regulations
COC	Contaminant of Concern
CSP	Certified Safety Professional
CY	cubic yard
USEPA	U.S. Environmental Protection Agency
FTBL	Fort Bliss Site
H&S	Health and Safety
IAW	in accordance with
IDW	investigation-derived waste
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m3	milligrams per cubic meter
NMAC	New Mexico Administrative Code
NMED`	New Mexico Environment Department
NMAC	New Mexico Administrative Code
NORM	Naturally Occurring Radioactive Material
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
pCi/g	picocuries per gram
PID	photoionization detector
PM	Project Manager
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	remedial investigation
SAP	Sampling and Analysis Plan
SHM	Safety & Health Manager
SSHO	Site Safety & Health Officer
SSHP	Site Safety and Health Plan

SSL	Soil Screening Level
SVOCs	Semivolatile Organic Compounds
SWMU	Solid Waste Management Unit
TCLP	Toxic Characteristic Leaching
TO	task order
TPG	Thompson Professional Group
TPH	Total Petroleum Hydrocarbons
TPH-DRO	TPH Diesel Range Organics
USAEC	United States Army Environmental Command
USEPA	U.S. Environmental Protection Agency
UXO	unexploded ordnance
VOCs	Volatile Organic Compounds
WEP	Waste Excavation Plan

1.0 INTRODUCTION

This Waste Excavation Plan (WEP) describes the proposed waste management activities for the Oro Grande Landfill, also designated as Solid Waste Management Unit (SWMU) 25 and Fort Bliss Site 14 (FTBL-14). Cape Environmental Management Inc (CAPE) will perform this work for the United States Army Environmental Command (USAEC) under Contract Number W91ZLK-13-003.

1.1 Corrective Measures Objectives and Scope

The *Final Letter Report for the Cover and Borrow Area Investigation of the Oro Grande Landfill,* dated November 21, 2011 *(*Malcolm Pirnie, 2011), concluded that the best remedial options for the site were removing and disposing of all the waste from SWMU-25/FTBL-014 in a permitted municipal landfill, or covering the landfill with an evapotranspiration cap. The report was submitted to the New Mexico Environment Department (NMED) with a cover letter dated September 6, 2013, that recommended the waste removal alternative. NMED concurred with the waste removal alternative in a letter dated June 26, 2014. The letter is attached in Appendix A.

The scope of this corrective action is to remove all of the buried waste material from the site, dispose of the waste at a permitted landfill, confirm the absence of contamination from the waste, restore the landfill area to its previous grade, and re-vegetate the restored surface.

The scope of this WEP is to assure the proper management of the waste removal and disposition of the excavated waste, and protection of site personnel and the public. Waste characterization samples were collected in July 2017, as discussed in Section 4.

1.2 Regulatory Requirements

These activities will be performed in accordance with (IAW) the requirements of the federal Resource Conservation and Recovery Act (RCRA), the solid and hazardous waste rules included in the New Mexico Administrative Code (NMAC), and RCRA Corrective Action Permit #NM4213720101-01, issued by the NMED Hazardous Waste Bureau.

Work will also be performed IAW the approved *Corrective Action Work Plan* for the Oro Grande Landfill (CAPE, 2015). The Work Plan was submitted to NMED in December 2015. NMED approved the Corrective Action Work Plan with modifications (additional confirmation samples requested) in a letter dated May 13, 2016 (NMED, 2016).

1.3 Site Description and Operational History

The landfill is located in a remote area of Fort Bliss at the southwest edge of Elephant Mountain in the Tularosa Basin of New Mexico, as seen on Figures 1 and 2. Placement

of waste material in the landfill area spanned a 30-year period, from 1964 until 1994. The Oro Grande site is a trench-type landfill.

The Oro Grande Landfill is situated at an approximate elevation of 4,240 feet above mean sea level. The terrain around the landfill generally slopes to the southwest. Arroyos are located east and west of the landfill. The arroyos appear to have been naturally formed by the surface runoff from infrequent rainfall events.

The soil type at the landfill is designated Pendero fine sand. The Pendero series is described as a reddish-brown, loamy fine sand, and is eolian in origin. The soil is described as having 2 percent to 5 percent slopes. Pendero soils are excessively drained and have low water capacity. Pendero fine sand contains 5 percent calcium carbonate and is considered moderately alkaline. The soil is typically 80 inches thick. Pendero fine sand can support desert shrub-type vegetation and is generally used for livestock grazing.

The land for the Oro Grande Range Camp was acquired sometime after 1938, due to the increased use of anti-aircraft weapons and training programs. In 1949, Oro Grande Range Camp facilities consisted of a salt water well and cistern, a septic tank for sewage with capacity for a population of 2,000 troops, an evaporation pool, 10 mess halls, 10 latrine buildings, 20 accessory buildings, and tents for troops. In 1950, the range camp added a post-exchange building, three range buildings, a caretaker's quarters, two storehouses, and a classroom. In 1962, the original buildings were demolished, and new semi-permanent masonry or sheet metal buildings were constructed to accommodate approximately 1,000 troops. Water for the newly constructed site was provided via pipeline from the White Sands Missile Range.

Operations at the Oro Grande Landfill began about 1964, and the landfill was closed in 1994. The contents of the landfill occasionally were burned. The landfill was excavated out of native soil, unlined, and capped with native soil. The landfill was described as consisting of a hard-packed clay caliche pit and rock walls with a hard-packed clay and sand floor. No hazardous wastes or unexploded ordnance (UXO) was reported to have been disposed of at the Oro Grande Landfill (Malcolm Pirnie, 2009).

1.4 Previous Investigations

The Thompson Professional Group (TPG) investigated the Oro Grande landfill (SWMU 25) in 1996. A geophysical survey was performed, using frequency-domain electromagnetic, magnetometry, and ground-penetrating radar techniques, followed by excavation of an exploratory trench. TPG identified the following contents at the Oro Grande Landfill based on trenching activities: field communications wire, construction materials, plastic sheeting and garbage bags, plant debris, asphalt, tar paper, metal items, a toilet, and household refuse.

Three soil borings were installed, and seven soil samples were collected from each boring, from approximately one to 50 feet below ground surface (bgs). Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and metals. Metals arsenic, barium, chromium, and lead were detected in multiple samples, while VOCs, SVOCs, PCBs, and pesticides were not detected. Arsenic, barium chromium, and lead were detected as high as 4.81 milligrams per kilogram (mg/kg), 176 mg/kg, 13.3 mg/kg, and 5.9 mg/kg, respectively, all below background concentrations for the respective metals (TPG, 1997). Four soil gas probes were also installed, and field soil gas readings were collected. Photoionization detector (PID) readings ranged from 0.2 to 7.1 parts per million (ppm).

A RCRA Facility Investigation (RFI) Report prepared for the landfill provides waste composition information, including chemical data. The landfill was previously described as consisting of a hard-packed clay caliche pit and rock walls with a hard-packed clay and sand floor (Wagner, 2000). Cover material observed in the exploratory trenches consists of poorly graded sand with clay, silty sand, and clayey sand with a thickness ranging from 1 to 10 feet, with an average thickness of approximately 4.6 feet.

During the RFI, the landfill extents were delineated with trenches, and 21 soil samples were collected. Wood, plastics, building materials, and glass were found in the trenches. Based on the RFI Report, the extent of the buried waste is approximately 345 feet by 37 feet (0.29 acres), and averages 2.8 feet thick, but varies up to about 7 feet thick. The soil cover averages 4.6 feet thick and varies from 1 to 10 feet thick, and the bottom of the debris layer is approximately 12 to 14 feet bgs. The RFI Report estimates the quantity of debris as 2,300 cubic yards (CY). This quantity was further refined to 2,075 CY based upon findings from subsequent additional test pits, as documented in the *Final Letter Report for the Cover and Borrow Area Investigation* (Malcolm Pirnie, 2011).

Tar material was disposed of on the ground surface in an arroyo to the west of the landfill. Over time, the tar disintegrated into small pieces, which were dispersed in the arroyo during storm events. Fort Bliss conducted removal activities related to the dispersed tar in 2004 and disposed of the material in a permitted landfill (Malcolm Pirnie, 2009).

Eight soil borings were installed with a hollow-stem auger rig, following trenching activities, to identify the extent of buried waste. One deep soil boring (F14-SB-6) was installed to 115 feet bgs, and two borings were installed to 30 feet bgs. Three soil borings were installed at a 30- degree angle at locations 7.5 feet outside the extent of waste as defined by the exploratory trenching.

Two soil borings were installed to 10 feet bgs in the northern and southern portions of the former tar material area. Soil samples were collected in the 0- to 1-foot interval to

determine if contaminants of concern (COCs) in the surface soils exceeded soil screening levels (SSLs)-Residential. Small fragments of tar ranging from gravel to cobble size were observed scattered across the surface of the former tar material area. Tar fragments were not observed in the soil borings advanced in this area.

During hollow-stem auger drilling, soil coring was conducted continuously from ground surface to total depth using a 5-foot barrel split-spoon sampler. Soil cores were inspected in the field for soil classification, color, texture, moisture content, and any other pertinent observations (e.g., evidence of staining). Each five-foot soil core was screened with a PID. A composite sample of each five-foot soil core was placed in separate plastic sealable bags, and any VOCs were allowed to equilibrate for headspace screening. The RFI boring logs are presented in Appendix B. Twenty-one soil samples were also collected.

1.4.1 RFI Soil Sampling Results

Soil borings for the RFI-observed wastes included concrete, glass, wiring, roofing materials, plastics, sandbags, paper, caulking tubes, trash bags, strapping material, glass bottles, wiring, a tire, household trash, spray can, oil absorbent rags, truck axle, metal, sheetrock, duct tape, Styrofoam, plastic netting, concrete and asphalt debris, concrete rubble, razor wire, and wood. Wastes were generally distributed across the former landfill.

The summary of analytical results from the RFI soil sampling is attached in Appendix C, and included:

Volatile Organic Compounds (VOCs)

- Dichloromethane (methylene chloride) was detected below the NMED SSL-Residential standard of 182 mg/kg in 12 soil samples, from 0.0038 mg/kg to 0.0062 mg/kg. No other VOCs were detected.

Semivolatile Organic Compounds (SVOCs)

- Benzo(k)fluoranthene was detected below the NMED SSL-Residential concentration of 62.1 mg/kg in one sample, at 0.0066 mg/kg.
- Bis (2-ethylhexyl) phthalate was detected below the NMED SSL-Residential standard of 347 mg/kg in 10 soil samples, from 0.0015 mg/kg to 0.019 mg/kg.
- Caprolactum was detected in three soil samples ranging from 0.015 mg/kg to 0.12 mg/kg. An NMED SSL-Residential concentration has not been established for caprolactum.
- Chrysene was detected below the NMED SSL-Residential standard of 615 mg/kg in one soil sample, at 0.0067 mg/kg.

- Di-butyl phthalate was detected below the NMED SSL-Residential level of 6,110 mg/kg in 10 soil samples, from 0.0012 mg/kg to 0.015 mg/kg.
- Organochlorine pesticides, chlorinated herbicides, and PCBs were not detected.

Total Petroleum Hydrocarbons (TPH)

- Diesel range TPH was detected below the NMED SSL-Residential concentration of 200 mg/kg in three samples, from 0.51 mg/kg to 1.6 mg/kg.

Inorganic Chemicals

- Arsenic was detected in soil sample F14-SB-5 at 4.01 mg/kg, just above the NMED SSL-Residential concentration of 3.9 mg/kg. Although above the U.S. Environmental Protection Agency (USEPA) Region 6 Residential SL level of 0.39 mg/kg, the arsenic detection was below the USEPA Region 6 background range for arsenic of 1.1 to 16.7 mg/kg. The sample was collected from 28-30 feet bgs, well below the observed wastes, and well below the projected excavation depth. Arsenic was considered to be the result of naturally occurring conditions, and not due to a release from the landfill. Arsenic was detected in all other samples collected from the site, all at concentrations below the NMED SSL-Residential standard and the USEPA Region 6 background concentration.
- Antimony, iron, molybdenum, strontium, thallium, and tin were detected below NMED SSLs-Residential standards.
- Calcium, lithium, magnesium, phosphorus, potassium, silica, sodium, and titanium were detected; however, NMED SSLs-Residential concentrations have not been established for these chemicals.

The RFI conclusions included:

- Buried wastes observed at the Oro Grande Landfill consisted of concrete, glass, building materials, plastic, wiring, packaging materials, and demolition debris. The estimated volume of the buried waste is approximately 2,300 CY, based on the observed average thickness of 2.8 feet.
- No evidence was found of a release of COCs from the buried wastes. The single detection of a COC above NMED SSL-Residential values was arsenic at 4.01 mg/kg, below published USEPA Region 6 background concentrations.
- Native materials below the buried wastes consist of sand with gravel and layers of caliche to approximately 30 feet bgs, and silty sand to 116 feet bgs.
- No completed exposure pathways to potential human or ecological receptors were identified, because no releases of COCs were observed.

- The Army and NMED agreed that the best option for the wastes was removal and disposal at a permitted municipal solid waste landfill.

2.0 SITE CONDITIONS

The following subsections are presented to characterize the site.

2.1 Site Geology

Otero County, New Mexico, is considered the easternmost edge of the Basin and Range province (O'Neill, 1998). Geologically, the Fort Bliss Military Reservation is located within the Tularosa Basin and Hueco Bolson of the New Mexico Highland section of the Basin and Range province. A groundwater divide separates the two basins hydrogeologically. The Sacramento and Hueco Mountains lie to the east of the basins, and the San Andres-Organ-Franklin Mountain chain lies to the west. The Oro Grande Landfill is situated at the southwest edge of Elephant Mountain at an approximate elevation of 4,240 feet above mean sea level.

The terrain around the landfill generally slopes to the southwest. Arroyos are located east and west of the landfill. The soil type at the landfill is designated Pendero fine sand. The Pendero series is described as reddish-brown, loamy fine sand, and is eolian in origin.

Subsurface soils in this portion of the basin are dry, unconsolidated basin fill deposits of fine-grained sand, silt, caliches, and clays. Based on the RFI, the landfill area cross-section consists of about 20 feet (depth) of sandy/gravelly soil overlying a layer caliche about 2 feet thick. It appears that the landfill debris trench is completely contained in this upper layer of sandy soil above the caliche layer. Below the caliche is a layer of sand and gravel extending to a depth of about 30 feet bgs, where there is another layer of caliche. The second layer of caliche is approximately 4 feet thick. Below the second layer of caliche is silty sand to a considerable depth (Malcolm Pirnie, 2009).

2.2 Site Hydrology

Groundwater is estimated to be at a depth between 250 and 500 feet bgs at this site. The water column in Otero County varies from 20 to 500 feet thick, but averages less than 100 feet in thickness.

The groundwater quality in the regional aquifer is reported to be non-potable due to high total dissolved solids. Groundwater is not used at the Oro Grande Camp for drinking water, as drinking water is piped in from the White Sands Missile Range. No groundwater was encountered in any of the geotechnical borings made for the RFI, and no groundwater is expected to be encountered during waste removal.

2.3 Contaminants of Concern

Soil

Only one minor exceedance of arsenic above NMED SSL-Residential values was detected during the RFI. However, if suspected contamination is discovered during waste

characterization sampling or excavation, the waste will be segregated and fully characterized IAW the procedures included in the Sampling and Analysis Plan (SAP), submitted as Appendix B of the Corrective Action Work Plan (CAPE, 2015), and approved by NMED (NMED, 2016).

Waste characterization samples were collected IAW with Section 4, and the SAP Addendum in Appendix D. Waste characterization sampling analytical results are attached in Appendix E.

Since the purpose of this task is to remove waste debris and replace that volume of waste with clean soil, no potential for exposure to hazardous substances will remain.

Groundwater

Groundwater is thought to be at a depth of more than 250 feet bgs (Malcolm Pirnie, 2009). Groundwater quality in the regional aquifer is reported to be non-potable, due to high total dissolved solids. Drinking water at the nearby Oro Grande Range Camp is piped in from the White Sands Missile Range headquarters. No water sources are near the Oro Grande Landfill site (Malcolm Pirnie, 2009).

Surface Water

Surface water is not an issue at this site, with the exception of the arroyos that flow intermittently as a result of heavy rainfall events. Due to the sandy nature of the site soils, rainwater tends to soak into the ground quickly and not pond. Stormwater will be diverted by silt logs or berms to prevent runoff from flowing into the excavation. Silt fencing will be installed downgradient of the excavation to prevent excavated soil from leaving the site. Any stormwater that enters the excavation will be collected and characterized for disposal.

Direct Contact

Based on site historical information and previous remedial investigation (RI) soil sampling results, soil characterization sampling and excavation during this project is not anticipated to present a human health occupational exposure inhalation risk. It is anticipated that there will be a minor potential for dermal exposure to low-level contamination of soil during excavation and loading of soil into containers for waste transportation and disposal. Water spray will be used to control generation of airborne dust. Personnel will not be directly handling contaminated soil. Modified Level D protection will be used as a precautionary measure during these activities. Decontamination procedures will be implemented so that there will be minimal potential for skin contact. No eating, drinking, or smoking will be allowed in the exclusion zone, and decontamination procedures will be implemented so that the potential for ingestion of contaminated soil is minimal. There is no documented contamination of soil above

regulatory industrial or residential human health risk criteria within the site excavation boundary.

Air and Subsurface Gas

There is a remote possibility that landfill gases (e.g., methane, hydrogen sulfide) may be encountered during excavation and loading of contaminated soil. Contaminant concentrations are anticipated to be very low, and the likelihood of significant airborne contaminant exposure is unlikely. If there is a site condition or work scope change that has the potential to expose workers to harmful concentrations of airborne contaminants or dust, work activities will cease, and exposure monitoring requirements will be re-evaluated. In addition, if unusual odors or respiratory irritation is noticed, the work will cease, and site personnel will remove themselves from the area and contact the Project Manager (PM) and Site Safety & Health Officer (SSHO) to evaluate.

PID monitoring for VOCs will be conducted for operations where the presence of VOCs is likely to occur. If VOCs are detected or suspected to be present in an area, sampling of the work area and breathing zone of workers is conducted periodically during work. VOC measurements that are below 5 ppm will be considered acceptable for Level D protection work. If VOCs exceed 5 ppm, but are less than 50 ppm, the SSHO will implement requirements for use of engineering controls, safe work practices, and respiratory protection. If VOC concentrations in the workers' breathing zone are between 5 ppm and 50 ppm, sustained over a 15-minute period, the SSHO will require Level C protection to be used. If VOC concentrations in the workers' breathing zone are greater than 50 ppm, work will be stopped, and the SSHO will evaluate.

It is not expected that air monitoring will be necessary to determine personnel exposures to chemical contaminants and/or physical agents for the project scope of work. However, periodic air monitoring for combustible gases (i.e., methane), oxygen, hydrogen sulfide, and VOCs will be conducted to document a negative exposure during project work. If suspected air contaminants are encountered, the PM, SSHO, and SHM will be contacted for further instructions, including establishing site action level concentrations. It is generally recognized that dust is visible in the 2 to 3 mg/m3 range; it is expected that use of a "no visible dust" action level and water spray for dust control should be sufficient to keep airborne particulate exposures to a minimum. Airborne dust monitoring will be conducted to document a negative exposure assessment.

The SSHO or designee completes air monitoring. Should action level concentrations be exceeded, response actions will be initiated to implement engineering controls, safe work practices, upgrade or downgrade in personal protective equipment (PPE), work stoppage, emergency evacuation, and notification and evaluation by the PM and SSHO. The SSHO is responsible for maintaining copies of applicable monitoring records at the site for the duration of the project. The SSHO notifies site personnel of air monitoring results

through correspondence or posting of information. See the project Site Safety and Health Plan (SSHP) for additional information regarding project occupational exposure monitoring.

3.0 SITE ACTIVITIES/ METHODS

CAPE will mobilize to the Oro Grande Landfill site after NMED approves the WEP. Staging areas and stockpile areas will be delineated. CAPE will mobilize personnel, equipment (e.g. excavator, loader, dozer, trucking), and construction support facilities to the site. CAPE will also install erosion controls.

Approximately 15 working days are anticipated to complete the excavation of the Oro Grande Landfill, and transport the wastes for disposal. Excavation and soil loading activities will be halted if winds are in excess of 30 miles per hour. The project schedule is shown in Appendix F.

3.1 Excavation Layout

The landfill area is marked with stakes set by a surveyor in February 2017. Existing stakes will be used as starting points for the excavation.

3.2 Excavation

The landfill area will be cleared and grubbed as needed. Brush was cut and removed in early February 2017. Clean cover soil (overburden) will be visually segregated, excavated, and stockpiled on site for reuse as backfill. Stockpiles will be covered with polyethylene sheeting. The excavation area will be wetted with the water truck to control dust.

All excavation will be performed in strict accordance with Occupational Safety and Health Administration (OSHA) excavation safety requirements. Excavation safety will be implemented as described in Section 3.6. Cover material (clean overburden) observed in the exploratory trenches consists of poorly graded sand with clay, silty sand, and clayey sand, with a thickness ranging from 1 to 10 feet, with an average thickness of approximately 4.6 feet (Malcolm Pirnie, 2009). The sides of the excavation will be benched or sloped appropriately to ensure stability. The soil at this site is anticipated to be OSHA Type C. As debris removal continues, the sidewalls will be laid back to a maximum allowable slope of 1.5:1 (H:V), or flatter. Personnel will not enter an excavation that is not properly sloped or benched. Water will be applied for dust control as needed to minimize airborne dust during heavy equipment operation.

Heavy equipment used to complete the excavation/backfill activities will include a John Deere 220 excavator, a John Deere 650 dozer, and a John Deere 544 loader (or similar equipment). A water truck will be used to control dust and to moisture condition the backfill material as necessary.

Soil borings observed various wastes generally distributed across the former landfill, as discussed in Section 1.4. Based on the results of the RFI investigation, CAPE plans on treating the waste volume as one decision unit, and does not plan on segregating the waste.

Waste materials will be excavated using an excavator and/or a loader and directly loaded into dump trucks for disposal. The excavation area will be wetted with the water truck to control dust, which will be monitored visually. The landfill waste material is classified as non-hazardous waste, based on results of the waste characterization sampling. Wastes will be screened with a PID if needed; however, based on the results of the waste characterization sampling, volatile organic wastes are not anticipated. If any of the waste appears to be from a different source or is observed to have different waste characteristics, it will be segregated and characterized separately.

3.3 Transport and Disposal

Loads will be covered with tarps prior to removal from the site. Gross soil, debris, etc., will be swept from external parts of the trucks before they are allowed to enter roadways. Excavated waste materials and any incidental investigation-derived waste (IDW) will be disposed at the Otero-Greentree Regional Landfill. A waste acceptance letter from the Otero-Greentree Landfill is included in Attachment G.

All waste material is characterized as non-hazardous waste, based on the waste characterization sampling results presented herein. AC Trucking, of Carrizozo, New Mexico, will be used to transport soil and waste material and to haul clean backfill into the excavation site. The waste material will be hauled to the Otero-Greentree Regional Landfill for disposal. Site access will utilize the existing dirt road to minimize disturbance. The roadway to the site will be graded, filled, and/or stabilized as needed to allow truck access. Truck traffic within the project area will be routed in a controlled manner in order to avoid confusion and potential accidents during the excavation activities (Figure 4). All waste material and debris will be removed. Confirmation samples will be collected to confirm that contaminants have been removed.

If any excavated material is suspected to contain hazardous substances, it will be segregated, properly characterized IAW Title 40 of the Code of Federal Regulations (40 CFR) Part 261, Subpart C, and managed IAW its waste determination. If hazardous waste is identified, it will be properly contained and disposed at a hazardous waste facility meeting the requirements of 40 CFR Part 268, Land Disposal Restrictions. If asbestos-containing materials (ACM) are encountered, CAPE will subcontract a licensed company to handle ACM IAW appropriate guidelines, and will dispose of them at a licensed disposal facility.

IDW (i.e., used PPE, expendable sampling equipment, plastic used to cover any waste or stockpiled materials) will be bagged and disposed, pending disposal clearance. Any non-disposable sampling equipment and excavation tools used during site activities will be decontaminated using techniques that minimize the generation of IDW. The IDW will be free of loose soil, and CAPE will discuss the acceptance criteria with the landfill prior to

sending them any IDW. Any decontamination water will be sampled and characterized, and disposed of at the Fort Bliss Wastewater Treatment Plant.

3.4 Backfill

Backfill material will be obtained from a Fort Bliss borrow source. One sample will be collected for every 500 CY of backfill material and analyzed IAW with the SAP to ensure that it is free of contamination prior to excavation. When approved, the backfill materials will be excavated and transported to the Oro Grande Landfill site.

Backfill of sandy fill material will be placed in 8- to 12-inch lifts and will be compacted by tracked machinery until surface defection are less than 4 inches, achieving compaction of 80 – 90 percent. Backfill compaction will be overseen by the Site Superintendent and documented by a geotechnical field technician. Since the backfill material is generally sandy, it is anticipated that compaction can be achieved using the dozer and loader. If not, lift thickness will be reduced.

3.5 Site Security

While the excavation is open during operations, and pending confirmation of analytical results, construction fencing will be placed around the excavation to keep people and animals out of the area, and signage (e.g. Construction Area – Keep Out) will be attached to the fencing. Signage in both Spanish and English languages will be posted.

3.6 Construction Safety

All personnel working on site will adhere to construction safety procedures as specified in the separate SSHP, submitted as Appendix C of the Corrective Action Work Plan (CAPE, 2015). The SSHP presents the contractor Health and Safety (H&S) procedures to be implemented by CAPE in the execution of this project. The SSHP has been prepared to meet the requirements of OSHA standards, 29 CFR Part 1910, and 29 CFR Part 1926; and USACE Safety and Health Requirements Manual (EM 385-1-1). The SSHP will be kept on site during the execution of all project activities and will be readily available to all on-site personnel. The Emergency Contact List is attached in Appendix H, and the hospital route is shown in Appendix I.

Level D and Modified-Level D personal protection will be used during site work activities. PPE will include disposable coveralls for dust exposure, polyethylene Tyvek® for incidental splash protection, steel-toed/shank boots, gloves, hard hats, safety glasses with side shields, goggles (for liquid splash hazards), face shields (polycarbonate for pressure washing), ear plugs, respirators, and high-visibility safety vests with reflective striping.

The SSHO will inspect excavation benches and/or slopes daily to monitor slope stability. Instability may be noted by cracks in the ground surface within a few feet of the

excavation wall, sloughing material into the excavation, or water seeping into the excavation from the wall. If potential slope instability is noted, the affected areas will be corrected by additional sloping or benching.

In the event of a construction emergency (e.g. fire, earthwork failure, etc.), the Army will be orally notified immediately, followed by notification in writing within 72 hours of the event. CAPE will support the Army, which will initiate any other notifications to OSHA, USEPA, or NMED, as appropriate, within 24 hours. Written notifications will specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and/or the environment. The CAPE incident response process and report forms are included in the SSHP.

Only experienced personnel will operate excavation equipment on site. Heavy equipment operation safety procedures and precautions include conducting daily operator inspections of heavy equipment for safe operating conditions. Excavation work areas will be properly marked and guarded with barriers and/or caution tape to prevent unauthorized personnel entry, and to prevent personnel from falling into open holes. Training will be provided to site personnel during the site safety orientation briefing and daily safety meetings on heavy equipment hazards and heavy equipment procedures.

Excavation and trenching activities must comply with OSHA excavation requirements. Compliance with these requirements must be maintained when installing trenches 4 feet or more in depth and/or excavations 5 feet or more in depth into which personnel are required to descend. Use of protective systems such as shoring, sloping, benching, or shielding, is required for personnel entry into trenches 4 feet or more in depth and/or excavations 5 feet or more in depth.

Miscellaneous physical hazards and safety procedures to be followed are reviewed with personnel in safety meetings, and may include discussion of the following topics:

- Poor housekeeping
- Sharp objects
- Uneven walking surfaces
- Slippery work surfaces
- Tripping hazards
- Fall hazards

Biological hazards that may potentially be encountered during site work include:

- Poisonous plants
- Venomous spiders
- Poisonous snakes (rattlesnakes)
- Rodents
- Insects

4.0 SAMPLING AND ANALYSIS

The sampling and analysis associated with this task includes waste characterization, analysis of stockpiled overburden soil from the excavation that will be used as backfill, analysis of borrow source soil, and confirmation sampling from the sidewalls and floor of the excavation to verify that the site is cleaned up to NMED SSL-Residential screening levels prior to backfilling. Sampling and analysis will be performed IAW the separate SAP, submitted to NMED as Appendix B of the approved Corrective Action Work Plan (CAPE, 2015).

4.1 Waste Characterization Sampling

Waste characterization sampling was conducted from July 24 through July 26, 2017, to properly characterize the wastes for disposal. Waste characterization samples were collected at the rate of one sample per 100 CY of waste, as requested by the Otero-Greentree Landfill. Twenty-three waste characterization samples were collected from in-situ wastes to evaluate the disposal requirements for the wastes, as shown on Figure 5. Samples were collected with a hollow-stem auger drilling rig, to 16 feet bgs or to the bottom of wastes.

CAPE collected 23 samples of debris and any potentially impacted soil, and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) analysis for VOCs, SVOCs, metals, pesticides, and herbicides. Wastes were also analyzed for PCBs, TPH, asbestos, ignitability, corrosivity, and reactivity. Three waste characterization samples were also analyzed for radioisotope assay for strontium, gross alpha and beta, as strontium was detected in the 2009 RFI sampling results. Waste characterization sampling was performed as detailed in the SAP Addendum in Appendix D.

The summary of analytical results from the waste characterization sampling is attached in Appendix E. Results included:

TCLP VOCs

- Benzene was detected in 6 of 23 soil samples, from 0.0104 milligrams per liter (mg/L) to 0.446 mg/L.
- Chlorobenzene was detected in 1 of 23 soil samples at 0.0020 mg/L.
- Chloroform was detected in 8 of 23 soil samples, from 0.0031 mg/L to 0.0053 mg/L.
- Tetrachloroethylene was detected in 2 of 23 soil samples, from 0.0299 mg/L to 0.0346 mg/L.
- Trichloroethylene was detected in 2 of 23 soil samples, from 0.0057 mg/L to 0.0066 mg/L.

TCLP SVOCs

- No SVOCs were detected.

Total Petroleum Hydrocarbons (TPH)

- TPH diesel range organics (TPH-DRO) was detected in all 23 soil samples, from 3.19 mg/kg to 508 mg/kg.

TCLP Herbicides and TCLP Pesticides

- No herbicides or pesticides were detected.

Polychlorinated Biphenyls (PCBs)

- PCBs were detected in 6 of 23 soil samples, from 9.5 micrograms per kilogram (µg/kg) to 105 µg/kg.

TCLP Metals

- Barium was detected in 17 of 23 soil samples, from 0.28 mg/L to 0.81 mg/L.
- Cadmium was detected in 10 of 23 soil samples, from 0.0020 mg/L to 0.014 mg/L.
- Chromium was detected in 1 of 23 soil samples at 0.012 mg/L.
- Lead was detected in 4 of 23 soil samples, from 0.013 mg/L to 0.77 mg/L.
- Silver was detected in 3 of 23 soil samples, with all three detections at 0.0080 mg/L.

Radioisotope Assay

- Strontium was not detected in any of the three samples in which it was analyzed.
- Gross alpha was detected at all three soil samples, from 10.5 picocuries per gram (pCi/g) to 16.4 pCi/g. These levels are consistent with Naturally Occurring Radioactive Material (NORM) in site soil.
- Gross beta was detected in all three soil samples, from 21.3 pCi/g to 24.1 pCi/g. The highest gross alpha or beta value of 24 pCi/g is below the lowest regulated level of 30 pCi/g above background (NMAC 20.3.14). Thus, gross alpha and beta levels do not indicate this waste as regulated NORM waste.

4.2 Confirmation Sampling

Confirmation sampling will be performed to verify that all of the waste material has been removed from the site, and no COCs are above NMED SSL-Residential screening levels.

Sixteen samples will be collected from the sidewalls, and six samples will be collected from the excavation bottom, as discussed in the SAP and as shown on Figure 6.

4.3 Backfill Sampling

Samples will be collected from Fort Bliss backfill sources to ensure that backfill material is clean. Samples will be collected at a rate of one sample result per 500 CY, prior to excavation of waste material.

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5.0 REFERENCES

CAPE, 2015. *Corrective Action Work Plan, FTB-014 (SWMU-25) Oro Grande Landfill*. December.

Malcolm Pirnie, 2009. *RCRA Facility Investigation Report, Oro Grande Landfill (SWMU 25/FTBL-14).* January.

Malcolm Pirnie, 2011. *Final Letter Report for the Cover and Borrow Area Investigation of the Oro Grande Landfill.* November.

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O'Neill, M. J, 1998. *Geologic Map of the Cienega School Quadrangle, Otero County, New Mexico, and Hudspeth County, Texas. U.S. Geological Survey.*

J. K. Wagner & Company, 2000. *Landfill Usage Archives Search Report on Dona Ana, Oro Grande, and McGregor Range Complex.* August.

Thompson Professional Group (TPG), 1997. *RFI, Five Solid Waste Management Units.*

FIGURES

Figure 1: Fort Bliss Site Location Map

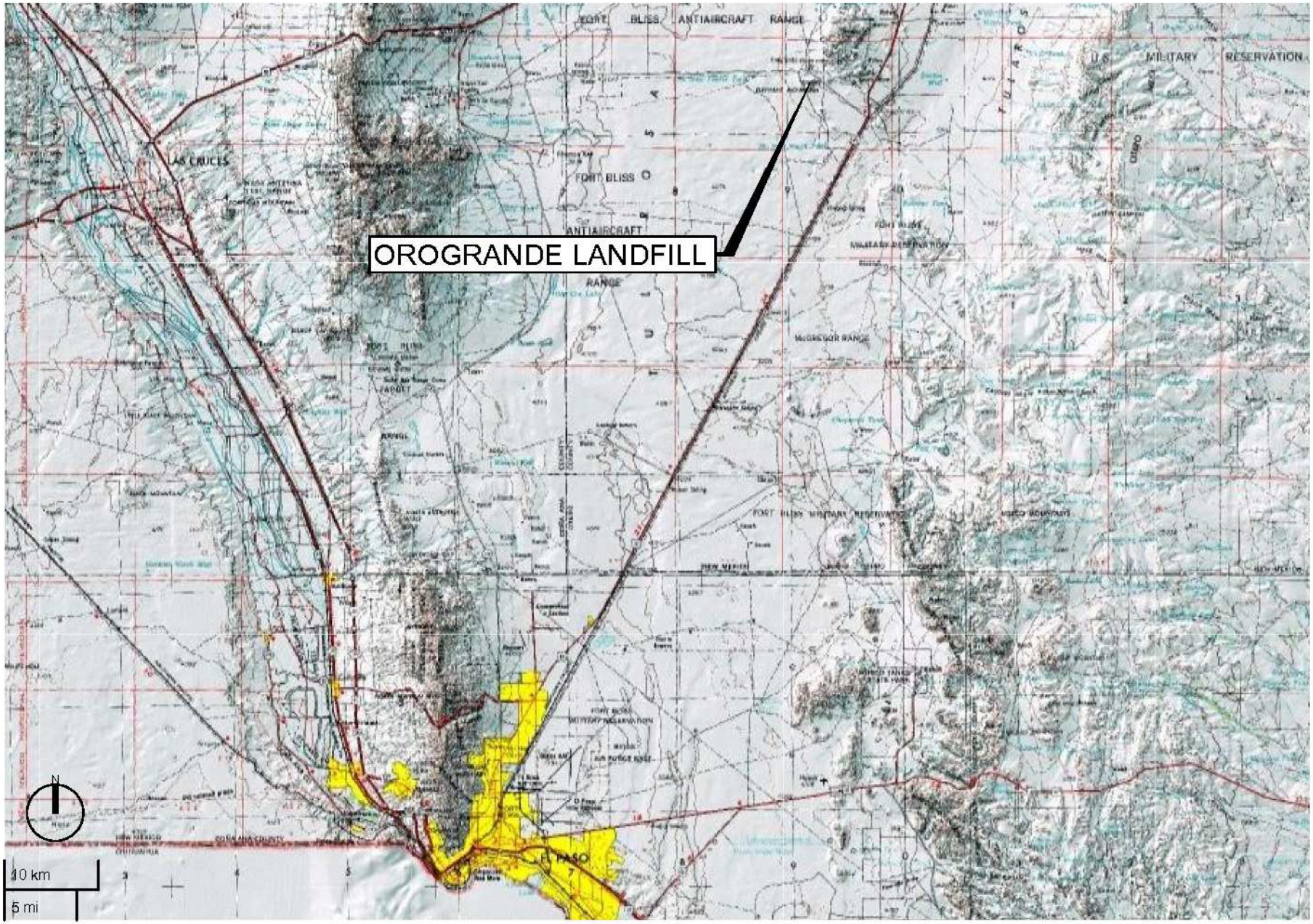
Figure 2: Landfill Site Location

Figure 3: Soil Boring and Trench Locations

Figure 4: Truck Haul Route

Figure 5: Waste Characterization Sampling Locations

Figure 6: Conformation Sampling Locations



CAPE

18007 Shavano Drive
San Antonio, TX 78257
(210) 877-2121

U.S. ARMY

MULTIPLE SITES AT FORT BLISS, NM

PROJECT NAME

CORRECTIVE ACTION WORK PLAN
FTB-14 SWMU-25
OROGRANDE LANDFILL

SHEET TITLE

LOCATION MAP

REVISIONS:

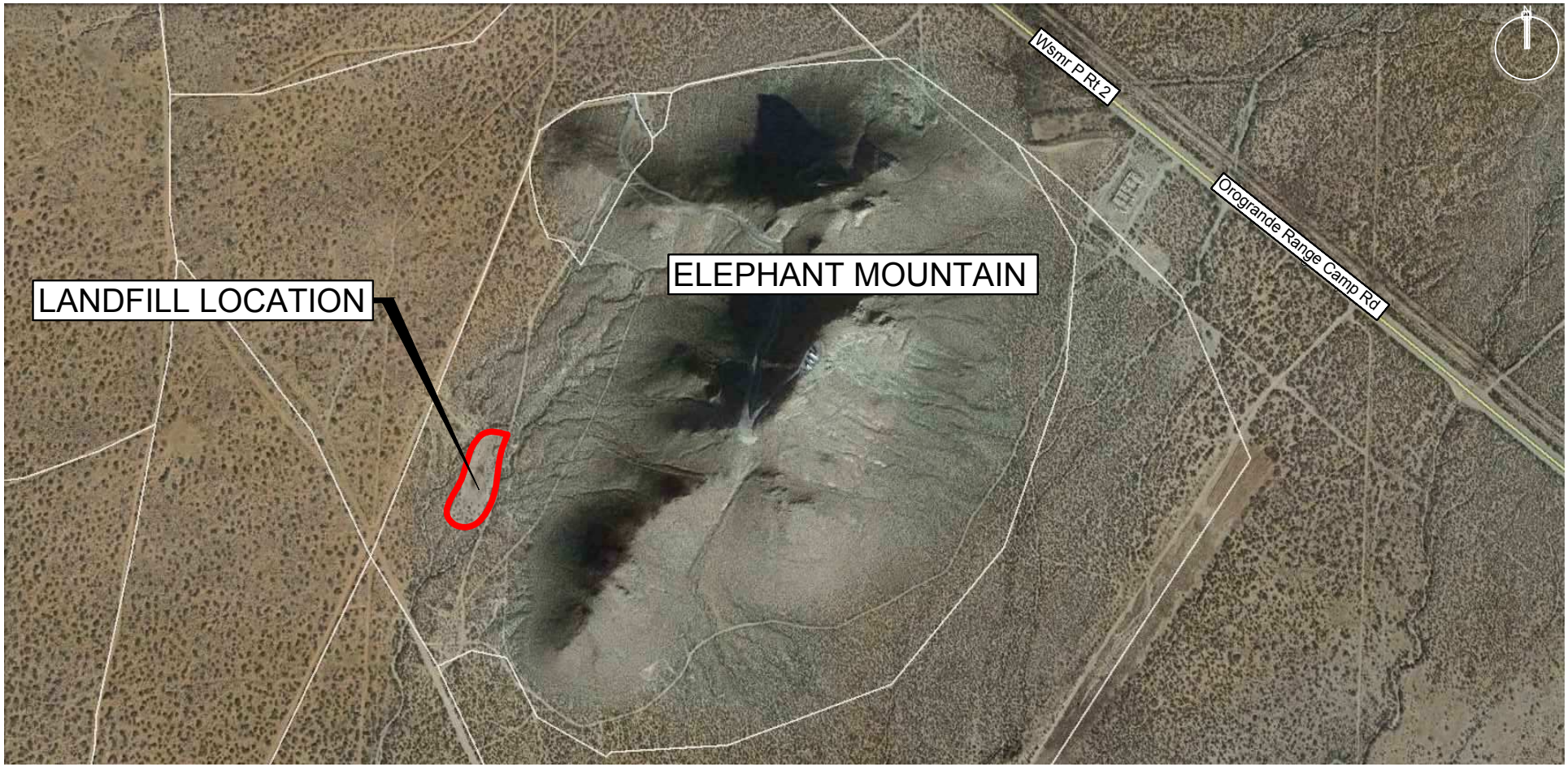
No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: S.USNICK	DRAWN BY: C.RIOS
REVIEWED BY: B.SHIVAR	DATE: SEPT. 2015
SCALE: AS SHOWN	FILE NAME: OG Fig1_Loc Map

SHEET NUMBER:

FIGURE 1

Z:\CON\US\Federal\USACE\KANSAS\21003.003.100\Drawings\OG Fig1_Location Map.dwg



Z:\CONUS\Federal\USACE\KANSAS\21003.003.100\Drawings\OG Fig3_Landfill Site Location.dwg

CAPE

12037 Starcrest Drive
San Antonio, TX 78247
(210) 377-2111

U.S. ARMY

MULTIPLE SITES AT
FORT BLISS, NM

PROJECT NAME

CORRECTIVE ACTION WORK PLAN
FTB-14 (SWMU-25)
OROGRANDE LANDFILL

SHEET TITLE

LANDFILL SITE LOCATION

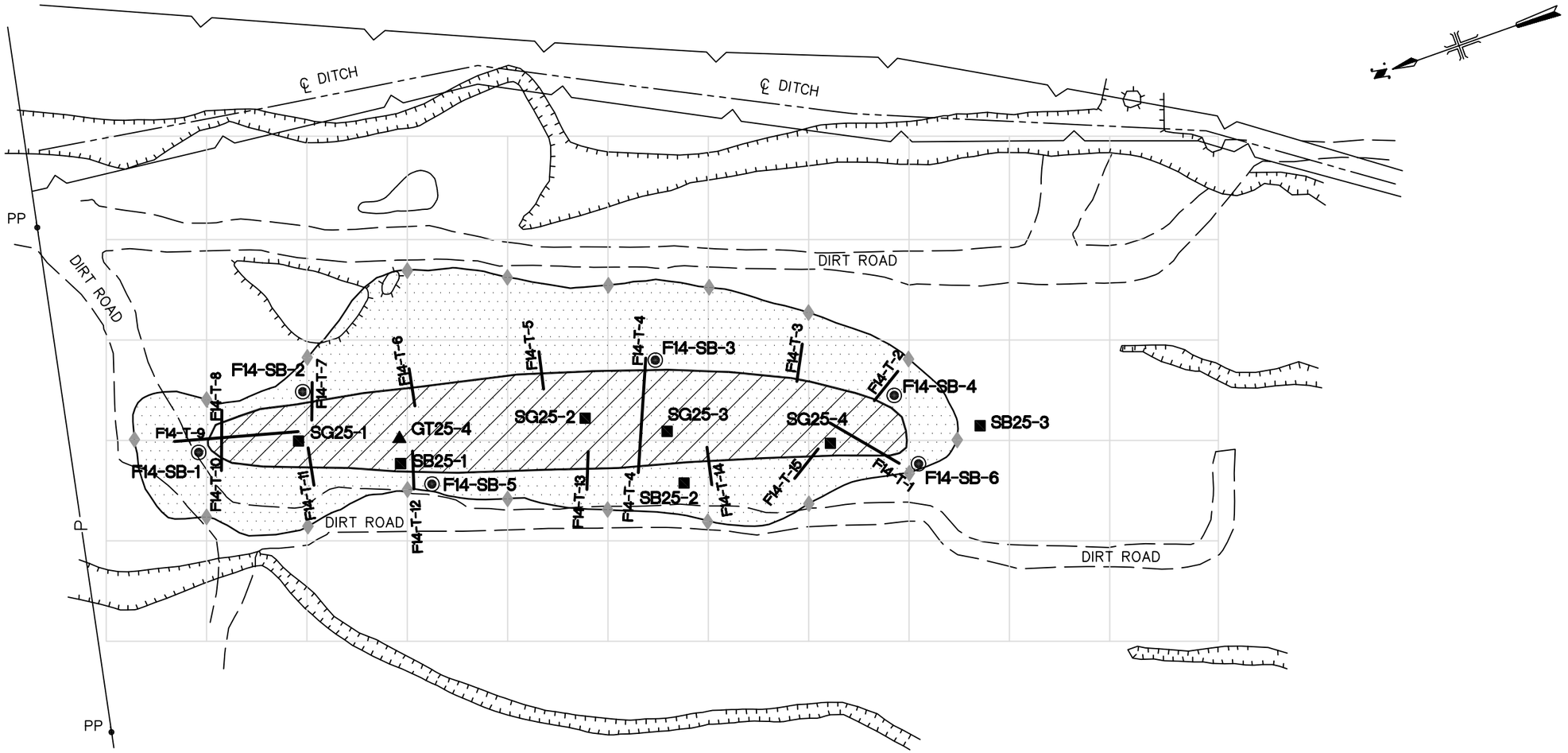
REVISIONS:

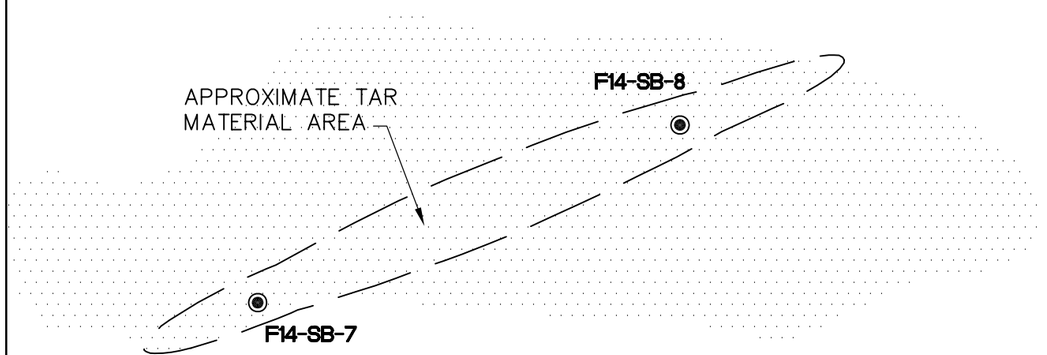
No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: S.USNICK	DRAWN BY: C.RIOS
REVIEWED BY: B.SHIVAR	DATE: SEPT. 2015
SCALE: AS SHOWN	FILE NAME: OG Fig3_Land Loc

SHEET NUMBER:

FIGURE 2





LEGEND

- ESTIMATED EXTENT OF WASTE BASED ON 2008 INVESTIGATION
- ROAD
- F14-SB-2 RFI SOIL BORINGS
- DEPRESSION
- MOUND
- SURVEYED FLAGS
- —P— POWERLINE
- PP POWER POLE
- EXTENT OF HIGH TERRAIN CONDUCTIVITY VALUES. BASED ON 1997 TPG GEOPHYSICAL SURVEY
- HIGH BANK (DITCH)
- F14-T-7 RFI TRENCH LOCATION
- ■ TPG SOIL BORING (1997)
- ▲ TPG GEOTECHNICAL SAMPLE (1997)

BASE MAP SOURCE: RCRA FACILITY INVESTIGATION
THOMPSON PROFESSIONAL GROUP, INC. (JULY,1997)

30 0 30 60

SCALE: 1" = 60'

MALCOLM PIRNIE

RFI REPORT
ORO GRANDE LANDFILL
(FTBL-14/SWMU-25)
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT

SOIL BORING AND TRENCH LOCATIONS

MALCOLM PIRNIE, INC.

FIGURE 3

10/03/2018

002966

XREFS: IMAGES: I:\ACAD\PROJ\5285027\site.jpg
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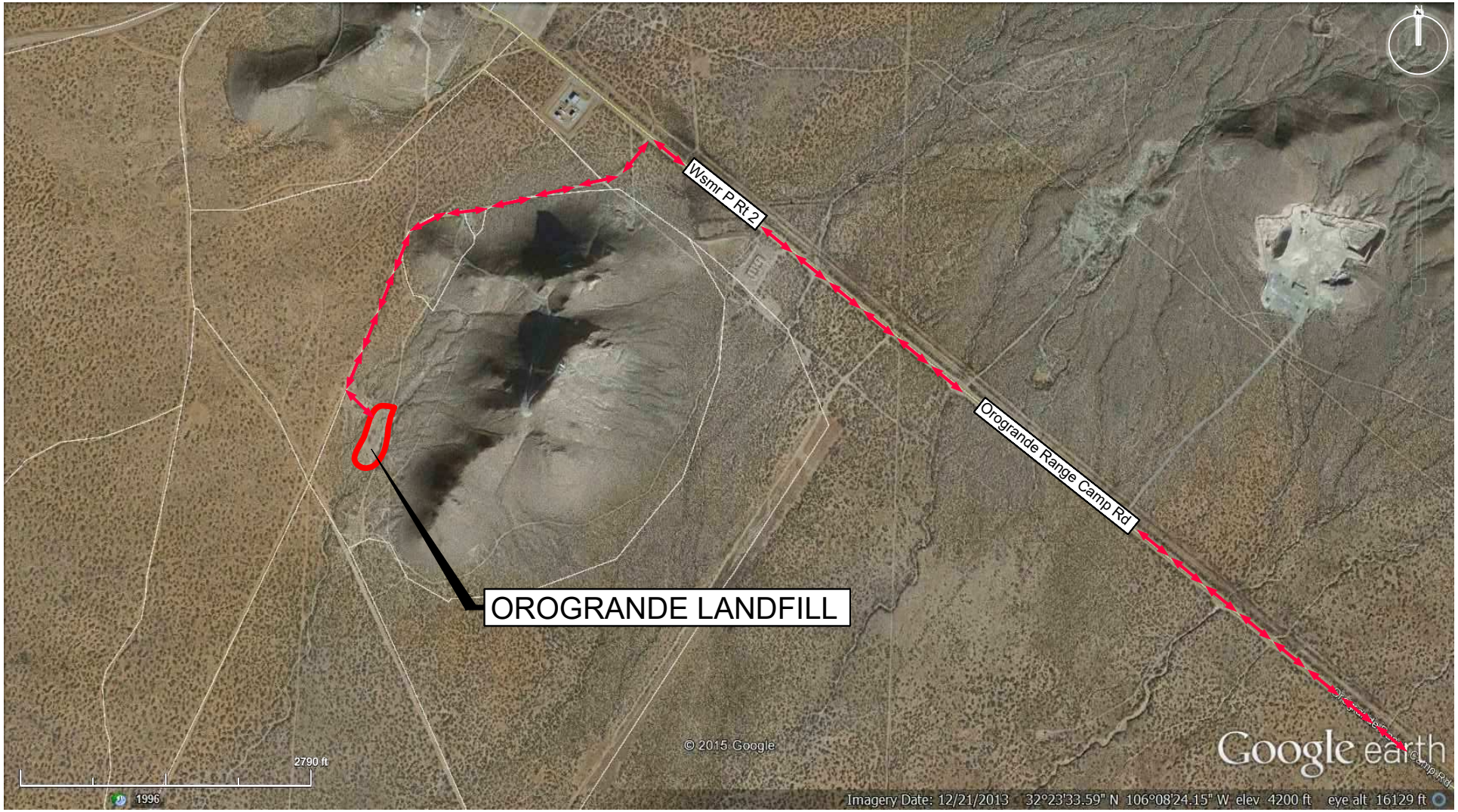


LEGEND

HAUL ROUTE

CAPE
12037 Starcrest Drive
San Antonio, TX 78247
(210) 377 - 2111

U.S. ARMY

MULTIPLE SITES AT
FORT BLISS, NM

PROJECT NAME

CORRECTIVE ACTION WORK PLAN
FTB-14 SWMU-25
OROGRANDE LANDFILL

SHEET TITLE

HAUL ROUTE MAP

REVISIONS:

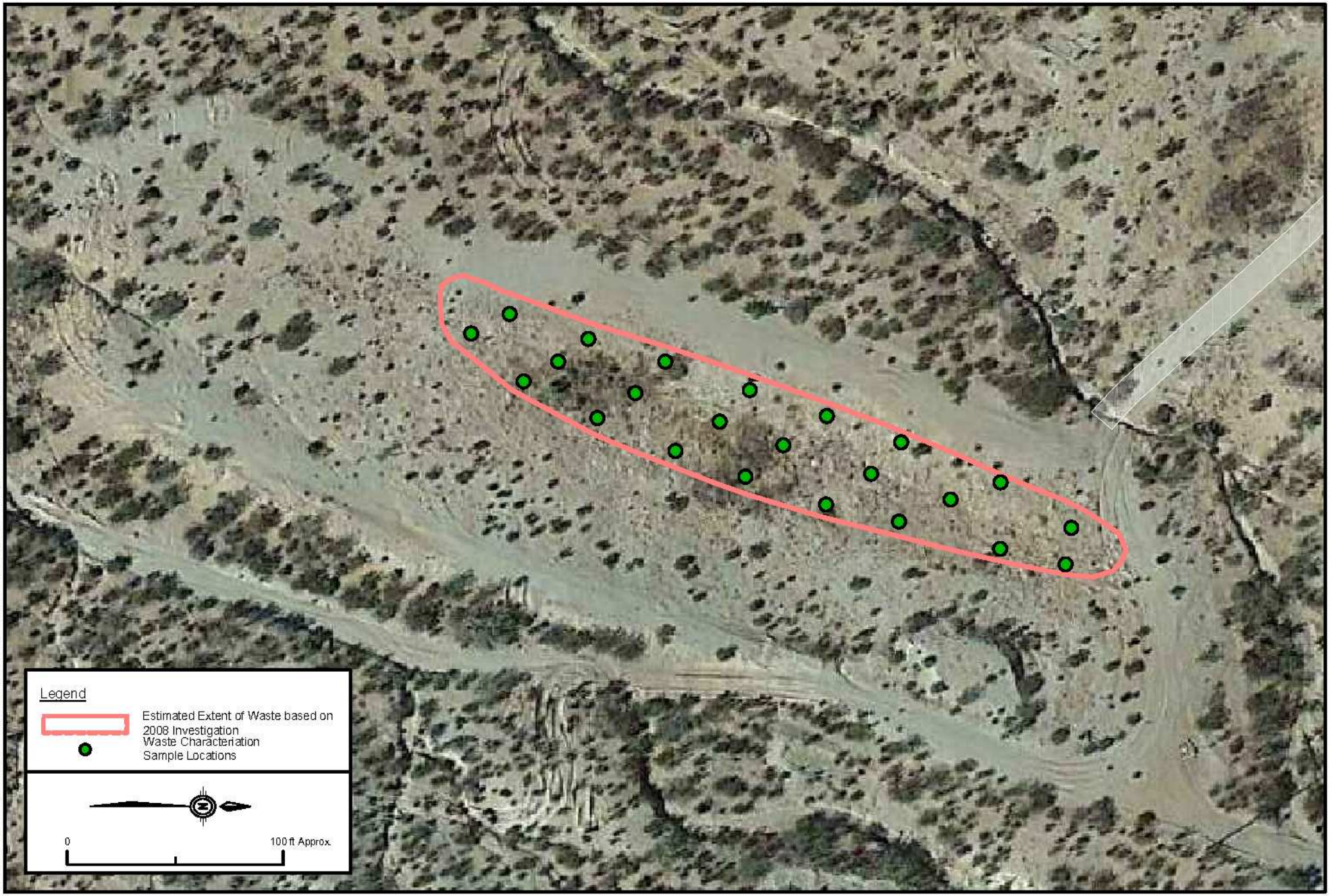
No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: S.USNICK	DRAWN BY: C.RIOS
REVIEWED BY: B.SHIVAR	DATE: SEPT. 2015
SCALE: AS SHOWN	FILE NAME: OG Fig4_H Route

SHEET NUMBER:

FIGURE 4

Z:\CONUS\Federal\USACE\KANSAS\21003.003.100\Drawings\OG Fig4_Haul Route Map.dwg



CAPE
18007 Shavano Drive
San Antonio, TX 78257
(210) 877-8111

U.S. ARMY

MULTIPLE SITES AT FORT BLISS, TEXAS

PROJECT NAME

OROGRANDE LANDFILL - FTBL 14
US DEPARTMENT OF THE ARMY
FORT BLISS, TX

SHEET TITLE

WASTE CHARACTERIZATION
SAMPLE LOCATIONS

REVISIONS:

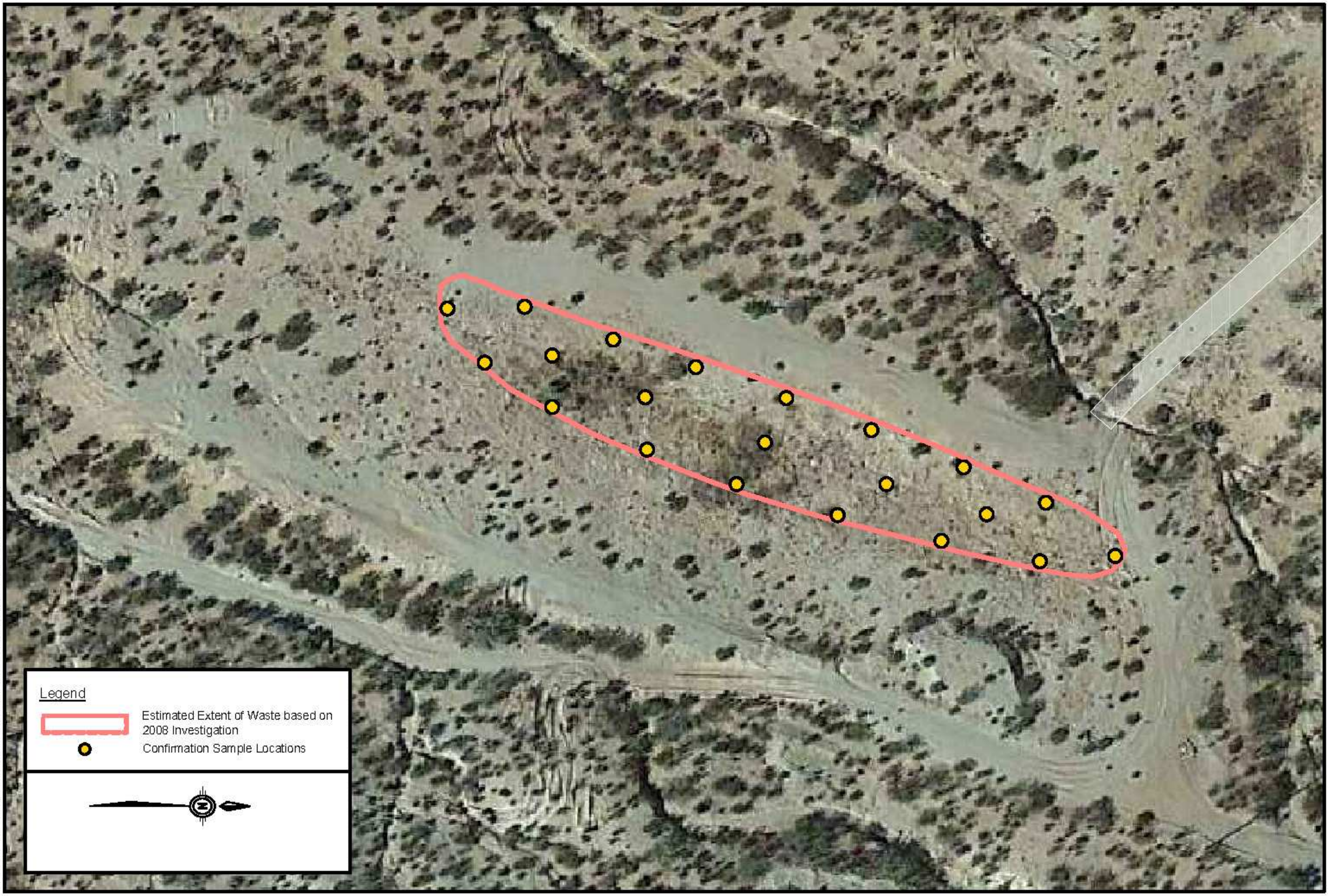
No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: M.MILLER	DRAWN BY: C.RIOS
REVIEWED BY: S.MOOREHEAD	DATE: SEP. 2017
SCALE: AS SHOWN	FILE NAME: 0G Fig1 Sample locations Map_SAP R2

SHEET NUMBER:

FIGURE 5

\\10.10.50.9\sanant\Projects\Army\ERMA\TO 0003 Fort Bliss\3.3 Plans\AutoCad\Orogrande\SAP\Figures\0G Fig1 Sample Locations Map_SAP R2.dwg



\\10.10.50.9\sanant\Projects\Army\ERM\ATO 0003 Fort Bliss\3.3 Plans\AutoCad\Orogrande\SAP\Figures\OG Fig1 Sample Locations Map_SAP R2.dwg

CAPE	U.S. ARMY	MULTIPLE SITES AT FORT BLISS, TEXAS PROJECT NAME OROGRANDE LANDFILL - FTBL 14 US DEPARTMENT OF THE ARMY FORT BLISS, TX	SHEET TITLE CONFIRMATION SAMPLE LOCATIONS	REVISIONS:	SHEET NUMBER: FIGURE 6

No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: M.MILLER	DRAWN BY: C.RIOS
REVIEWED BY: S.MOOREHEAD	DATE: SEP. 2017
SCALE: AS SHOWN	FILE NAME: OG Fig1 Sample locations Map_SAP R2

APPENDIX A

NMED APPROVAL LETTER 2014

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary-Designate

BUTCH TONGATE
Deputy Secretary

TOM BLAINE, P.E.
Director
Environmental Health Division

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 2, 2014

(b) (6)
Chief, Environmental Division
Directorate of Public Works
Department of the Army
Headquarters, U.S. Army Garrison Command
1741 Marshall Road
Fort Bliss, TX 79916-3803

RE: APPROVAL
FINAL REPORT FOR THE COVER AND BORROW AREA INVESTIGATION OF THE ORO GRANDE LANDFILL (SWMU-25/FTBL-014)
FORT BLISS, NEW MEXICO
EPA ID #NM4213720101
HWB-FB-13-002

Dear (b) (6)

The New Mexico Environment Department (NMED) has reviewed the Department of Army's (Permittee) *Final Letter Report for the Cover and Borrow Area Investigation of the Oro Grande Landfill (SWMU-25/FTBL-014)*, Fort Bliss, New Mexico (status report), dated September 6, 2013 and received September 10, 2013.

In accordance with NMED's comments in the letter titled *Approval with Modification RCRA Facility Investigation Report Oro Grande Landfill (SWMU 25/FTBL-14), Fort Bliss, New*

Mexico (February 3, 2010), the Permittee conducted additional trenching to the center of the landfill to determine the thickness of buried waste. According to the information provided in the status report dated November 21, 2011, the waste was found to range in thickness from approximately one foot to ten feet, with an estimated volume of 2,075 cubic yards. The status report determined three types of closure options: to close in place with a standard engineering cover; to close in place with an arid exemption/evapotranspiration (ET) cap; or to completely remove the waste and transport it to a permitted landfill. The status report concluded that due to geotechnical characteristics of the landfill and borrow cover material the two best options were to close in place with an ET cap or to remove and dispose the waste in the permitted landfill.

In the cover letter dated September 6, 2013, the Permittee states "the best option for Fort Bliss would be complete removal of waste from SWMU-25/FTBL-014, and the disposal of the removed waste at a permitted municipal solid waste landfill". NMED agrees and notes that any waste or soil removed must be tested and characterized in accordance with a Department approved sampling and analysis plan (SAP) in accordance to 40 CFR 268.7 and 268.9 prior to disposal in a municipal landfill.

The Permittee has fulfilled its obligation to conduct additional trenching to determine the thickness of buried waste. The Permittee must submit a closure plan, in accordance to the regulations 40 CFR 264 Subpart, no later than October10, 2014.

If you have any questions regarding this letter, please contact (b) (6)

Sincerely,

(b) (6)

(b) (6)
Hazardous Waste Bureau

(b) (6)

File: Fort Bliss (SWMU 25), Corrective Action Status Report September 2013
FB-13-001

APPENDIX B

RFI SOIL BORING LOGS

MALCOLM PIRNIE

Boring ID: **F14-SB-1**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*13-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	0-5' SAND, fine grained, loosely packed, tan/reddish. Gravel sized chalky caliche and gravel sized rock fragments.		0.0	Sample F14-SB-1(0-2)
5	**5'-30'** SAND, fine grained tan/reddish, caliche gravel and rock throughout. Firm, dense, and compact.		0.0	
10			0.0	
15	14'-15' - Dense layer of dry compact caliche.	SW		Sample F14-SB-1(13-15)
20			0.0	
25			0.6	
30			0.0	Sample F14-SB-1(28-30)
	Total Depth = 30.0 ft bgs			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-2**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*15-Feb-08*	**DRILLING METHOD**	*HSA 30° angle*
FINISH DATE	*15-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	0-5' SAND, light tan, coarse grained with gravel sized rock fragments.		0.0	Sample F14-SB-2(0-2)
5	**5'-10'** SAND, fine grained, loosely packed, light tan. Gravel sized rock and root fragments throughout.		0.0	
10	**10'-15'** SAND, light reddish-tan, fine grained and loosely packed.		0.0	Sample F14-SB-2(13-15)
15	**15'-30'** SAND, light reddish-tan, fine grained, with gravel sized chalky caliche and gravel to cobble sized quartzite rock fragments. Firm, dense, and compact. Dry.	SW	0.0	
20			0.6	
25			0.0	
30				Sample F14-SB-2(28-30)
	Total Depth = 30.0 ft bgs Note: Drilled 35 linear ft at 30° angle to reach a point approximately 17 ft beneath the landfill material and approximately 30 ft bgs.			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-3**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*15-Feb-08*	**DRILLING METHOD**	*HSA 30° angle*
FINISH DATE	*15-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	0-5' SAND, fine grained, loosely packed, tan/reddish. Gravel sized chalky caliche and gravel sized rock fragments.		0.0	Sample F14-SB-3(0-2)
5	**5'-25'** SAND, light reddish-tan, gravel sized chalky caliche and rock mixed throughout. Firm, dense, and compact.		0.0	
10			0.0	
15		SW		Sample F14-SB-3(13-15)
	17'-20' - Dense layer of compact caliche.		0.0	
20			0.0	
25	**25'-30'** SAND, light reddish-tan, fine grained with gravel to cobble sized rock fragments mixed throughout. Dry.		0.0	
30				Sample F14-SB-3(28-30)
	Total Depth = 30.0 ft bgs			
	Note: Drilled 35 linear ft at 30° angle to reach a point approximately 17 ft beneath the landfill material and approximately 30 ft bgs.			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-4**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*13-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
0	**0-5'** SAND, fine grained, loosely packed, tan/reddish. Chalky caliche and coarse grained gravel.	SW	0.0	Sample F14-SB-4(0-2)
5	**5'-10'** SAND, fine grained, loosely packed, tan/reddish. Chalky caliche and coarse grained gravel.		0.5	
10	**10'-15'** SAND, fine grained, loosely packed, tan/reddish. Chalky caliche and coarse grained gravel.		0.0	Sample F14-SB-4(13-15)
15	**15'-20'** SAND, tan/reddish, loosely packed, with dense white chalky caliche layer at 17'-20'.		0.7	
20	**20'-25'** SAND, tan/reddish, loosely packed with gravel sized rock and chalky caliche gravel. Very dense at 28-30 ft.		0.3	
25	**25'-30'** SAND, tan/reddish, loosely packed with gravel sized rock and chalky caliche gravel. Dry.		0.0	Sample F14-SB-4(28-30)
30	Total Depth = 30.0 ft bgs			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-5**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*13-Feb-08*	**DRILLING METHOD**	*HSA 30° angle*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	0-5' SAND, coarse grained with gravel, loosely packed, tan/reddish.		0.0	Sample F14-SB-5(0-2)
5				
	5'-15' SAND, reddish-tan, fine grained, with gravel sized rock. Compact and firm.		1.2	
10				
			0.6	
15		SW		Sample F14-SB-5(13-15)
	15'-20' SAND, light tan with chalky white caliche and gravel sized rock fragments. Compact and firm.		1.2	
20				
	20'-30' SAND, light reddish-tan with gravel to cobble sized rock fragments anc chalky caliche fragments. Firm and dense. Dry.		0.0	
25				
			1.2	
30				Sample F14-SB-5(28-30)
	Total Depth = 30.0 ft bgs			
	Note: Drilled 35 linear ft at 30° angle to reach a point approximately 17 ft beneath the landfill material and approximately 30 ft bgs.			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-6**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*12-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
0	**0-5'** SAND, fine grained, loosely packed, tan/light brown with coarse grained gravel and chalky caliche.		0.7	Sample F14-SB-6(0-2)
5	**5'-10'** SAND, fine grained, loosely packed, tan/light brown with coarse grained gravel and chalky caliche. Dense and compact at 9-10 ft.		0.0	
10	**10'-15'** SAND, fine grained, light brown/tan compact and dense with chalky gravel sized caliche at 14-15 ft.		0.6	Sample F14-SB-6(13-15)
15	**15'-20'** SAND, fine grained, light reddish/tan. Compact, dense, chalky caliche abundant trhougout.		0.4	
20	**20'-25'** SAND, fine grained light tan. Compact, dense, chalky caliche throughout.	SW	1.3	
25	**25'-30'** SAND, fine grained, light reddish/tan, loosely packed.		1.5	Sample F14-SB-6(28-30)
30	**30'-35** SAND, fine grained light reddish/tan with layer of light tan sand and chalky caliche between 31 and 34 ft.		1.6	
35	**35'-40'** SAND, fine grained, light reddish/tan. Dense layer of sand and caliche between 37 and 39 ft. Mixture of silty-sand and gravel sized caliche and quartzite rock fragments at 39-40 ft.		1.7	
40	Continued on next page.			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-6**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*12-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	40'-50' Mixture of silty-sand, chalky caliche, and gravel to cobble sized quartzite rock fragments. Firm and densely packed.		0.0	
45				
			0.3	
50				
	50'-57' SILTY-SAND, fine grained, light tan to brown. Compact and dense with quartzite gravel mixed throughout.		2.8	
55				
	57'-80' SILTY-SAND, fine grained, loosely packed,		2.5	
60		SW		
			2.3	
65				
			1.9	
70				
	Quartzite rock fragments encoutnered after 72 ft.		n/a	
75				
			n/a	
80				
	Continued on next page.			

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-6**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*12-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*13-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
	80'-85' SILTY-SAND, tan with gravel sized quartzite rock.	SW	3.2	
85				
	85.5'-86' CLAY, red brown, lean, firm and dense. Contains caliche.	CL		
	Note: Layer of rock between 86-87', could not push sample, drilled to 90 ft for next sample push.		n/a	
90				
	90'-115' SILTY-SAND, fine grained, tan/brown, and densely packed. Dry.		2.0	
			n/a	
95				
			1.6	
			n/a	
			2.4	
100				
		SM	n/a	
			1.6	
105				
			n/a	
			0.9	
110				
			n/a	
			0.3	Sample F14-SB-6(113-115)
115				
			n/a	Geotech Sample F14-SB-6(115-116.5)
	Total Depth = 116.5 ft bgs.			
120				

All depths are in feet below grade.

MALCOLM PIRNIE

Boring ID: **F14-SB-7**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*12-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*12-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
0	**0-5'** SAND, coarse grained with gravel mixed throughout, loosely packed, red-orange.	SW	2.7	Sample F14-SB-7(0-1)
5	**5'-10'** SAND, fine grained tan. Gravel throughout and root fragments present. Dry.		2.1	
10	Total Depth = 10.0 ft bgs.			
15				
20				
25				
30				

All depths are in feet below grade.

SHEET 1 **OF** 1

MALCOLM PIRNIE

Boring ID: **F14-SB-8**

BORING LOG

CLIENT	*USACE - Tulsa District*	**PROJECT #**	*5285-027*
PROJECT	*FB-14 Oro Grande Landfill*	**DRILLING CONTRACTOR**	*Enviro-Drill*
LOCATION	*Oro Grande, NM*	**DRILLER**	(b) (6)
START DATE	*12-Feb-08*	**DRILLING METHOD**	*HSA*
FINISH DATE	*12-Feb-08*	**HYDROGEOLOGIST**	*C. Melson*

DEPTH	SAMPLE DESCRIPTION	USCS	PID	NOTES
0	**0-5'** SAND, fine grained, loosely packed, red-orange. Coarse grained gravel mixed throughout.	SW	2.7	Sample F14-SB-8(0-1)
5	**5'-10'** SAND, fine grained, tan. Gravel mixed throughout. Dry.		2.1	
10	Total Depth = 10.0 ft bgs.			
15				
20				
25				
30				

All depths are in feet below grade.

APPENDIX C

RFI ANALYTICAL RESULTS SUMMARY

Table 3 - 2

Summary of Detections - Organic Compounds - Soil Samples - February 2008

Oro Grande Landfill - FTBL-14

Fort Bliss, New Mexico

	F14-SB-1			F14-SB-2			F14-SB-3			F14-SB-4			F14-SB-5			F14-SB-6				F14-SB-7	F14-SB-8	NMED SSLs
Parameters	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	113-115 ft	0-1 ft	0-1 ft	Residential
Volatile Organic Compounds (mg/kg)																						
Dichloromethane	0.0051 J	0.0054 J	0.0052 J	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.0057 J	0.0048 J	0.0062 J	< 0.01	< 0.01	< 0.01	0.0059 J	0.0049 J	0.0054 J	0.0053 J	0.0038 J	0.0039 J	ne
All Other Analytes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	various
Semivolatile Organic Compounds (mg/kg)																						
Benxo(k)fluoranthene	na	na	< 0.0066	na	na	< 0.0066	na	na	< 0.0066	na	na	< 0.0066	na	na	0.0066 J	na	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	62.1
Bis (2-ethylhexyl)phthalate	na	na	0.014	na	na	0.0091	na	na	0.017	na	na	0.015	na	na	0.019	na	0.015	0.01	0.015	0.0079	0.015	347
Caprolactum	na	na	0.025	na	na	< 0.0066	na	na	< 0.0066	na	na	0.12	na	na	< 0.0066	na	0.015	< 0.0066	< 0.0066	< 0.0066	< 0.0066	ne
Chrysene	na	na	< 0.0066	na	na	< 0.0066	na	na	< 0.0066	na	na	< 0.0066	na	na	0.0067	na	< 0.0066	< 0.0066	< 0.0066	< 0.0066	< 0.0066	615
Di-butyl phthalate	na	na	0.011	na	na	0.0069	na	na	0.015	na	na	0.013	na	na	0.012	na	0.015	0.0078	0.0082	0.0083	0.011	6110
All Other Analytes	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	ND	ND	ND	ND	ND	various
Organochlorine Pesticides (mg/kg)																						
All Analytes	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	ND	various
Chlorinated Herbicides (mg/kg)																						
All Analytes	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	na	na	ND	ND	various
Polychlorinated Biphenyls (mg/kg)																						
All Analytes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	na	ND	ND	various
Total Petroleum Hydrocarbons (mg/kg)																						
Diesel Range Organics	< 1.7	< 1.7	na	1.6 J	< 1.7	na	0.51 J	< 1.7	na	< 1.7	< 1.7	na	< 1.7	< 1.7	na	< 1.7	< 1.7	na	na	< 1.7	0.51 J	200 **

Notes :

ND - No detection of chemicals.

na - Not analyzed

< - Not detected at listed concentration.

J - Estimated concentration below reporting limit.

mg/kg - milligrams per kilogram

ne - Not Established. No SSL for listed chemical.

Samples were collected on February 13 to 16, 2008.

SSL - Soil Screening Levels from Table A-1, NMED Hazardous Waste Bureau, Technical Background Document for the Development of Soil Screening Levels, Version 4.0, June 2006.

** - Screening value for soil affected with unknown oil (Table 2a), NMED Total Petroluem Hydrocarbon Screening Guidelines (October 2006).

Table 3-3

Summary of Analytical Results for Inorganic Compounds - Soil Samples - February 2008

Oro Grande Landfill - FTBL-14

Fort Bliss, Oro Grande, New Mexico

	F14-SB-1			F14-SB-2 (angled boring)			F14-SB-3 (angled boring)			F14-SB-4			F14-SB-5 (angled boring)			F14-SB-6				F14-SB-7	F14-SB-9	NMED SSLs	USEPA Region 6	
Parameters	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	0-2 ft	13-15 ft	28-30 ft	113-115 ft	0-1 ft	0-1 ft	Residential	Residential SL	Soil Background
Inorganic Chemicals (mg/kg)																								
Aluminum	4280	2980	6000	3960	2340	4260	4340	2960	3020	5430	2740	4360	3770	2370	6420	4230	2320	5370	5470	2700	2970	77800	77000	45000
Antimony	< 0.485	< 0.467	< 0.472	0.199 J	< 0.481	0.193 J	< 0.463	< 0.485	< 0.485	< 0.481	< 0.45	< 0.439	< 0.459	< 0.472	< 0.485	< 0.446	0.173 J	< 0.472	< 0.476	< 0.439	< 0.467	31.3	31	ne
Arsenic	1.92	1.77	3.38	2.16	2.71	2.25	2.59	2.18	2.69	2.77	1.92	1.74	2.27	1.57	**4.01**	2.41	1.74	2.67	2.01	1.25	1.35	3.9	0.39 / 22 **	1.1 - 16.7
Baruim	110	16.9	24.6	60	30	94.4	124	36.1	58.7	119	44.9	27.5	79.3	24.8	28.7	69.8	31.2	46.2	79.8	37.5	35.9	15600	16000	430
Beryllium	0.285 J	0.209 J	0.304 J	0.254 J	0.147 J	0.255 J	0.269 J	0.184 J	0.213 J	0.346 J	0.191 J	0.228 J	0.225 J	0.145 J	0.354 J	0.298 J	0.185 J	0.254 J	0.292 J	0.23 J	0.196 J	156	160	0.5 - 2
Boron	2.88	4.73	7.42	3.36	4.88	5.53	3.01	4.47	5.01	5.12	3.01	3.81	3.08	4.42	6.82	1.98 J	4.48	5.32	6.41	1.95 J	1.45 J	15600	16000	2 - 200
Cadmium	0.101 J	0.0723 J	0.0791 J	0.0519 J	< 0.481	0.0637 J	0.0548 J	< 0.029	0.038 J	0.0939 J	0.0601 J	0.0672 J	0.0415 J	< 0.472	0.0637 J	0.0591 J	0.0391 J	0.0345 J	0.0309 J	0.058 J	< 0.467	39	39	0.01 - 1
Calcium	49400	14800	32700	28500	11200	39400	61600	12900	43400	48400	8730	28300	38800	11900	49300	26100	15800	22200	7430	2810	7060	ne	ne	ne
Chromium	3.1	2.91	4.14	3.74	3.05	5.22	3.59	3.24	3.22	3.54	2.99	3.1	3.44	2.76	5.34	4.37	3.36	4.88	5.28	3.59	3.38	234	210	38
Cobalt	1.7	1.04	1.96	1.8	0.952	1.88	1.89	1.18	1.64	2.05	0.887	1.33	1.64	0.918	2.2	2.29	1.12	1.79	2.06	1.53	1.23	1520	900	8
Copper	1.95	0.961	1.87	2.1	0.911	2	2.15	1.26	1.64	2.37	1.08	1.3	1.8	0.913	2.38	3.52	1.17	2.79	3.65	1.69	1.72	3130	2900	20
Cyanide	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1220	1200	ne
Iron	3600	2840	4640	4240	2790	4530	4660	3360	3890	4320	2710	3190	4030	2620	5640	4840	3130	4740	5140	4490	3690	23500	55000	ne
Lead	3.35	2.51	3.22	3.28	2.3	3.81	3.41	2.57	2.98	4.06	2.39	2.56	3.23	2.25	4.12	4.79	2.47	3.31	3.4	2.92	2.87	400	400	10-18
Lithium	< 4.76	5.63	9.3	< 4.76	< 4.67	5.05	< 4.9	< 4.59	< 4.81	4.82	< 4.72	7.69	< 4.76	< 4.81	15.6	< 4.76	< 4.9	20.1	7.86	< 4.39	< 4.46	ne	ne	ne
Magnesium	2030	1820	3720	2040	1770	2940	2530	1790	2260	2320	1300	2350	2320	1460	5260	1610	1590	4920	2510	898	1050	ne	ne	ne
Manganese	69	43.7	72	73.3	32.9	85.8	74.6	52.3	79	90.5	32.1	50.6	75.1	36.2	84.1	100	47.3	88.2	83.1	67.7	59.2	3590	3500	389 - 850
Mercury	0.00945 J	< 0.0133	< 0.0131	0.00356 J	< 0.0131	0.00219 J	0.0078 J	< 0.0133	< 0.132	0.00524 J	< 0.0132	< 0.0128	0.00197 J	< 0.0132	< 0.0132	0.01 J	< 0.0129	< 0.0131	< 0.0132	< 0.0131	< 0.0128	6.11 *	23	0.1
Molybdenum	0.2 J	0.173 J	0.256 J	0.246 J	0.119 J	0.358 J	0.216 J	0.157 J	0.225 J	0.208 J	0.186 J	0.177 J	0.212 J	0.168 J	0.124 J	0.133 J	0.248 J	0.309 J	0.172 J	0.197 J	0.1 J	391	390	ne
Nickel	3.06	2.07	3.78	2.92	1.88	3.07	3.37	2.29	2.5	4.14	1.8	2.6	2.7	1.79	4.68	3.82	2.08	3.53	3.87	2.5	2.49	1560	1600	16
Phosphorus	88.8	17.2	50	71.2	13.8	117	140	19.8	28.2	128	19.4	41.2	61.2	17.6	123	96.8	14.2	37.5	17.1	62	19.4	ne	ne	ne
Potassium	928	744	1700	1060	809	1220	1160	914	1040	1290	713	1190	972	740	2510	1110	744	1600	1640	608	695	ne	ne	ne
Selenium	0.445 J	0.247 J	0.407 J	0.407 J	0.352 J	0.525	0.709	0.359 J	0.538	0.6	0.221 J	0.286 J	0.576	0.357 J	0.583	0.493	0.425 J	0.403 J	0.452 J	0.34 J	0.324 J	391	390	0.2
Silica	16.3	8.65	14	29.6	8.71	16.9	9.37	9.21	13.4	18.5	12.3	28.5	17.8	13	30.8	33.2	20.3	94.2	196	76	18.3	ne	ne	ne
Silver	0.0285 J	0.0281 J	0.0204 J	0.116 J	0.1 J	0.116 J	0.103 J	0.102 J	0.101 J	0.027 J	0.0189 J	0.0201 J	0.105 J	0.0999 J	0.103 J	0.107 J	0.11 J	0.101 J	0.101 J	0.12 J	0.105 J	391	390	0.01 - 5
Sodium	83.8	403	433	< 47.2	454	367	74.7	452	273	266	290	79.3	42.6 J	202	417	< 44.6	370	463	372	19.3 J	< 46.7	ne	ne	ne
Strontium	90.1	56.9	80.4	68.8	43.7	91.8	130	59.1	107	101	24.7	96.4	91.1	26.6	110	49.7	47	103	43.4	11	20.8	4690	4700	ne
Thallium	0.0813 J	0.0591 J	0.0836 J	0.0651 J	< 0.481	0.0921 J	< 0.463	< 0.049	< 0.0485	0.0798 J	0.053 J	0.0522 J	0.0529 J	< 0.472	0.0667 J	0.0537 J	0.0746 J	0.0517 J	0.0554 J	0.149 J	0.576J	5.16	5.5	ne
Tin	1.03 J	1.07 J	1.13 J	1.04 J	1.09 J	1.08 J	0.945 J	1.1 J	1.03 J	0.972 J	1.05 J	1.07 J	1.00 J	1.06 J	1.07 J	0.955 J	1.12 J	1.18 J	1.05 J	1.07 J	1.05 J	ne	47000	122
Titanium	94	66.5	102	104	65.6	113	91.8	75	104	105	58.6	69.8	97.9	67.8	100	104	69.1	93.3	92.9	80.9	81.1	ne	ne	ne
Vanadium	10.1	10.9	17.8	12	12.3	12.3	11.9	13.8	13.7	12.1	13	9.53	12.1	7.98	18	10.3	10	14.5	15.2	9.97	7.26	78.2	390	66
Zinc	9.47	5.96	10.5	10	5.85	11.5	10.3	7.1	8.96	10.5	5.61	7.45	10.7	5.84	14	12.8	6.58	12.1	13.7	9.42	8.33	23500	23000	22 - 50

Notes :

< - Not detected at listed concentration.

J - Estimated concentration below reporting limit.

ne - not established

mg/kg - milligrams per kilogram

Samples were collected on February 13 to 16, 2008.

Analysis conducted by e-Lab, Inc., Houston, TX

Boldface indicates that the detected concentration exceeded NMED SSL-Residential value.

SSL - Soil Screening Levels from Table A-1, NMED Hazardous Waste Bureau, Technical Background Document for the Development of Soil Screening Levels, Version 4.0, June 2006.

USEPA Region 6 Screening Levels (SLs) and background concentrations from Region 6 Human Health Medium- SCREENING LEVELS Specific Screening Levels 2008

* - Mercury (methyl)

APPENDIX D

SAMPLING AND ANALYSIS PLAN ADDENDUM

FINAL

SAMPLING AND ANALYSIS PLAN

FTB-014 (SWMU-25) ORO GRANDE LANDFILL

FORT BLISS, NEW MEXICO

Contract Number W91ZLK-13-0003
Task Order Number 0003

Prepared for:

DEPARTMENT OF THE ARMY
U.S. ARMY ENVIRONMENTAL COMMAND
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CAPE Project Number 21003.003

Revision Number: Rev 2

March 2017

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LIST OF ABBREVIATIONS AND ACRONYMS

BCY	banked cubic yards
bgs	below ground surface
CAPE	Cape Environmental Management, Inc.
CFR	Code of Federal Regulations
CoC	chain-of-custody
COPC	Contaminant of Potential Concern
CY	cubic yard(s)
FD	Field Duplicate (sample)
ft.	foot (feet)
GWTP	groundwater treatment plant
IAW	in accordance with
IDW	investigation-derived waste
MICC	Mission and Installation Contracting Command
mL	milliliter
MS	matrix spike (sample)
MSD	matrix spike duplicate (sample)
NMAC	New Mexico Administrative Code
NMED`	New Mexico Environment Department
oz.	ounce
PAH	poly-nuclear aromatic hydrocarbons
PBA	Performance Based Acquisition
PCB	Polychlorinated biphenyls
PM	Project Manager
PPE	personal protective equipment
PWS	Performance Work Statement
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RSL	Regional Screening Level

SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SSHP	Site Safety and Health Plan
SSL	Soil Screening Level
SVOC	semi-volatile organic compound
SW	solid waste
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
T&D	Transport & Disposal
TO	task order
TPH-DRO	Total Petroleum Hydrocarbon-Diesel Range Organics
TPH-GRO	Total Petroleum Hydrocarbon-Gas Range Organics
U.S.	United States
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

Cape Environmental Management Inc (CAPE) is submitting this Sampling and Analysis Plan (SAP) to the United States Army in accordance with (IAW) the Performance Work Statement (PWS), dated April 13, 2015, included in the Performance-Based Acquisition (PBA) Contract W91ZLK-13-D-0003, Task Order (TO) 0003, for firm fixed-price environmental remediation services at four sites at Fort Bliss, Texas. The TO was issued by the U.S. Army Mission and Installation Contracting Command (MICC), Fort Sam Houston, Texas, on July 1, 2015. This SAP only applies to the Oro Grande Landfill Corrective Measures Action.

The Oro Grande Landfill is located in Otero County, New Mexico, within the Fort Bliss Military Reservation. The landfill is 0.8 miles south-southwest of the Oro Grande Range Camp at the southwest edge of Elephant Mountain in the Tularosa Basin of New Mexico. Placement of waste material in the landfill area spanned a 30-year period of time, from 1964 until 1994. The waste material comprising the landfill is reported to consist of concrete, glass, building materials, plastic, wiring, packaging materials, and demolition debris. The Oro Grande is a trench-type landfill. Based on findings obtained in a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report, the extent of the buried waste is approximately 345 feet by 37 feet (0.29 acres) and averages 2.8 feet thick, but varies up to about 7 feet thick. The soil cover averages 4.6 feet thick, but varies from 1 to 10 feet thick, and the bottom of the debris layer is approximately 12 to 14 feet below ground surface (bgs). It is estimated that there are 2,075 cubic yards (CY) of waste debris in the landfill (NMED, 2014).

This SAP has been prepared in reference to environmental remediation work IAW RCRA and New Mexico Administrative Code (NMAC) regulations and requirements of the PWS and Fort Bliss. It defines the approach to collection of confirmation samples and waste characterization, and borrow source characterization samples. This SAP will be submitted to the Army and the New Mexico Environmental Department (NMED) for approval.

2.0 ORO GRANDE LANDFILL FIELD SAMPLING ACTIVITIES

The RFI report from 2009 states that analytical results from samples collected at this site indicate that there were no contaminant concentrations exceeding the NMED Soil Screening Levels (SSLs) for Residential exposure with the exception of arsenic, which was detected at a level below the naturally occurring background levels for native soils at this site. Consequently, the RFI did not identify any contaminants of potential concern (COPCs). This section provides details and guidance for performing the environmental sampling necessary to provide waste characterization, clean closure confirmation, and clean backfill confirmation. These samples are summarized in Tables 2-1 and 2-2, Sample Summary Table and Analytical Summary Table, and are further described in the following sections.

2.1 Contaminant Delineation

Contaminant delineation sampling and exploratory trench excavations were made as part of the RFI, and the excavation area is currently marked. Further excavation delineation will be performed visually in the field by removing debris as it is encountered. When the excavation appears to be clear of debris, confirmation sampling will be conducted.

2.2 Excavation Confirmation Sampling

Since there were no COPCs identified in the RFI, there were no exceedances of COPCs above NMED SSL-Residential values found during the RFI. Subsequently, confirmation soil samples will be analyzed for the same chemical groups: volatile organic compounds (VOCs), by United States (U.S.) Environmental Protection Agency (USEPA) Solid Waste (SW) 5035/8260; semi-volatile organic compounds (SVOCs), by EPA SW 3541/8270; metals, by EPA SW 6020/7000; pesticides, by EPA SW 3541/8081; herbicides, by EPA SW 3550/8151); polychlorinated biphenyls (PCBs) via Arochlor mixtures, by EPA SW 3541/8082; and total petroleum hydrocarbons-diesel range organics (TPH-DRO), by EPA SW 5000/8015C. The most recent NMED SSL list of contaminants for each analytical group, contained in the NMED *Risk Assessment Guidance for Site Investigations and Remediation*, dated July 2015, will be reported. If suspect contamination is discovered, the material will be segregated and characterized. Additional analyses may be performed based on any evidence of contaminants other than the NMED SSL list.

If no suspicious materials or substances are uncovered during excavation, 21 confirmation samples will be collected. Sixteen samples will be collected from the sidewalls of the excavation, and five from the base of the excavation, as shown on Figure 1. One field duplicate (FD), one matrix spike (MS), and one matrix spike duplicate (MSD) will also be collected during confirmation sampling for Quality Control (QC) purposes. If suspicious materials are encountered during excavation, the sampling scheme will be tailored to fit the situation. Sample collection procedures are discussed in Section 3.

All samples will be sent to Accutest Laboratories for analysis. The analytical results will be compared to the NMED SSL-Residential screening values, published in July 2015, to confirm if cleanup levels have been met or if excavation limits need to be adjusted.

2.3 Clean Backfill Certification

Backfill from the Fort Bliss borrow source will be certified as clean before it is used to backfill the excavation. All backfill material will have laboratory results at a rate of one sample result per 500 CY, and a minimum of one representative discrete sample per source to confirm it is clean. The discrete sample will be collected from a depth interval of 0.5 to 1.0 feet (ft.).

The backfill soil/sand will be analyzed for the following parameters:

- Target Compound List (TCL) SVOCs, by EPA SW 3541/8270, including poly-nuclear aromatic hydrocarbons (PAHs)
- TCL VOCs, by EPA SW 5035/8260
- TCL Pesticides by EPA SW 3541/8081, and PCBs by EPA SW 3541/8082
- Target Analyte List (TAL) Metals, by EPA SW 6020/7000.

Based on a total waste volume of approximately 2,075 CY that is estimated to be replaced with backfill borrow source material, three discrete samples from random locations within the borrow soil volume to be used for backfill will be submitted to Accutest to certify. In addition, all stockpiled overburden soil excavated to access the landfill waste material will also be sampled and analyzed at the same frequency of one sample per 500 CY. The results will be compared to the NMED SSL Residential values and to the USEPA Regional Screening Levels (RSLs) IAW the procedures contained in the NMED *Risk Assessment Guidance for Site Investigations and Remediation*, dated July 2015, to approve the stockpiled overburden for reuse as backfill in the excavation.

2.4 Decontamination Procedures

For the limited sampling required for this excavation, it is anticipated that disposable sampling equipment, e.g. food-grade disposable aluminum heating pans and stainless steel spoons for homogenization and bottling of samples, will be used. Disposable sampling equipment will be used to collect one sample, and then discarded or recycled. No decontamination will be needed for sampling equipment. All potentially contaminated materials will be handled with gloved hands and with the appropriate personal protective equipment (PPE) as determined by the *Site Safety and Health Plan* (SSHP).

Given the dry nature of this site and sandy soil, heavy equipment can likely be swept clean prior to removal from the site. No wet decontamination is anticipated; however, if COPCs are encountered during excavation and wet decontamination is required for heavy equipment, CAPE will decontaminate using a power washer. Any wastewater from a power washer will be captured on a plastic liner, drummed, sampled, and appropriately disposed.

2.5 Waste Characterization

Excavation wastes will be characterized and classified in accordance with Title 40 Code of Federal Regulations (CFR) Part 261. All waste will be managed and disposed in accordance with the requirements of the USEPA, NMED, and Fort Bliss.

This project entails transport and disposal (T&D) of landfilled debris. CAPE will sample any portions of the debris necessary to provide the landfill proper waste characterization; however, it is not anticipated that waste characterization of the debris will be needed.

Any debris that appears to contain lead paint, fuels or solvents, industrial or sanitary waste, or any other solid waste not conforming to typical inert debris, will be stockpiled on site and covered with plastic sheeting, or alternatively placed in drums. Liquid wastes will be placed in drums or poly tanks. Containers will be labeled to protect them from tampering and will be staged in a secured (fenced) area.

Waste characterization samples will be collected from in situ wastes to evaluate the disposal requirements for the wastes. Samples will be collected with a Geoprobe or hollow-stem auger drill rig, to 16 feet bgs.

CAPE will collect samples of debris and any potentially impacted soil and analyze them via Toxicity Characteristic Leaching Procedure (TCLP) analysis for VOCs, SVOCs, metals, pesticides, and herbicides. Wastes will also be analyzed for PCBs, TPH, asbestos, radioisotope assay for strontium, ignitability, corrosivity, and reactivity.

Analytical method and sample bottle requirements are provided in Table 2-2. Waste characterization results will be compared to the TCLP, ignitability, corrosivity, and reactivity values listed in 40 CFR Part 261 Subpart C, values for PCBs listed in 40 CFR Part 761.61, radioisotope values in picocuries per gram, and the TPH values for facility acceptance criteria.

The following waste streams could potentially be generated during T&D of landfilled debris:

- Contaminated water from equipment decontamination
- Contaminated solids from equipment decontamination
- Contaminated debris, which could include, but not limited to, discarded materials used in decontamination, plastic sheeting, sampling materials, and personal protective clothing
- General municipal waste.

Soil wastes, liquid waste, decontamination solids, decontamination liquid, and contaminated debris will be segregated from other solid waste generated during the proposed site activities. These wastes will be characterized to determine whether it must be managed and disposed of as special waste, hazardous waste, or non-hazardous waste.

Liquid wastes will be characterized to determine whether it can be transferred to the Fort Bliss groundwater treatment plant (GWTP) for disposal, or disposed of as hazardous waste.

Investigation-derived waste (IDW), such as used PPE, expendable sampling equipment, or plastic used to cover any waste or stockpiled materials, will be sampled as needed to characterize the IDW. CAPE will discuss the acceptance criteria with the landfill prior to sending them any IDW. Analytical methods are shown in Table 2-3.

3.0 GENERAL SAMPLING PROCEDURES

This section describes the general procedures to be used for soil contaminant delineation, confirmation, and waste characterization sampling activities, and provides checklists of the necessary equipment.

3.1 General Sampling Materials

The following general materials are required:

- All data necessary to properly identify the scope of work. This should include items such as reports, historical field and lab data, and any special instructions (i.e., NMED guidelines, project specifications, etc.)
- Chain-of-custody (CoC) forms
- Field notebook/field forms
- Custody seals
- Sampling tool(s)
- Laboratory-prepared sampling containers
- Sample container labels
- Waterproof marking pens
- Laboratory-prepared travel blanks, if required
- Preservatives (supplied by laboratory if required)
- Insulated cooler & ice
- Packing materials for shipping samples
- PPE as specified in the SSHP (Appendix C of the *Work Plan*).

3.2 Sampling for Chemical Analyses

Sample containers (provided by the laboratory) will be pre-labeled prior to commencing the sampling activities. The sampling procedure for the confirmatory and waste characterization samples is summarized below (procedure modifications for grab sample collection are shown in parentheses):

- Prepare the work area around the sample location by placing plastic sheeting on the ground to avoid cross-contamination.
- Verify that the sample containers for the current location are labeled correctly.
- Collect the soil/sand sample with a disposable spoon.

- Homogenize the sample material, place the soil aliquot in the sample containers, and secure the caps tightly. Soil sampled for VOCs will not be homogenized. Soil samples to be analyzed for VOCs will be collected using a coring device (such as a modified syringe or Encore™ Sampler), and the sample will be immediately capped. New sample equipment (coring devices) will be used for each sample location. (Discrete samples: proceed to next step).

- Check sample label. Be sure label is completed with all necessary information, such as time, date, and sampler initials.

- Place filled sample containers on ice immediately.

- Complete all required information on each sample collection log sheet prior to moving to the next sampling location.

- Disposable non-latex gloves will be worn during sampling activities, and will be changed between sampling locations.

- Complete COC documents and appropriate field logbook entries prior to leaving the sampling area for breaks, shift termination, or for any other non-emergency reason.

Prior to any sample collection, if there are any unidentified odors in the air, or there is a reason to believe that potential hazardous or contaminant vapors are present, the Project Manager (PM) and Site Health and Safety Officer will be notified. Ventilation and/or other engineering controls will be implemented, and the conditions will be noted on the field sampling form and the field logbook.

Some other products that may pose cross-contamination issues include: perfumes and cosmetics, skin-applied pharmaceuticals, suntan lotion, and automotive products (e.g., starting fluid, windshield de-icer, carburetor cleaners, upholstery cleaners, etc.). Use of these or other products constituting potential impact on sample integrity will be avoided before and while collecting/managing samples.

The PM will be consulted regarding significant departures from standard operating procedures (SOPs). The PM will document the modifications, then notify the Contracting Officer's Representative to discuss any such variation from the SOP. Notes will be kept describing the sampling procedures and variations, and submitted to the PM for review. Any deviations from the SOPs or the SAP will be discussed in the Corrective Measures Completion Report.

3.3 Sample Containers and Preservation

Pre-preserved sample containers for soil samples will be provided by the contract laboratory. The containers will be shipped, along with labels and manufacturer's quality control documentation, from the laboratory to CAPE via common carrier in clean coolers using custody seals. Coolers will be packed with ice, and will include a temperature blank. For all coolers containing samples for VOC analysis, a trip blank will also be

included. All samples will be collected and shipped such that the 24-hour hold time period for VOC sample preparation is not exceeded.

4.0 REFERENCES

CAPE, 2015. *Corrective Action Work Plan, FTB-014 (SWMU-25) Oro Grande Landfill, Fort Bliss, New Mexico*. September.

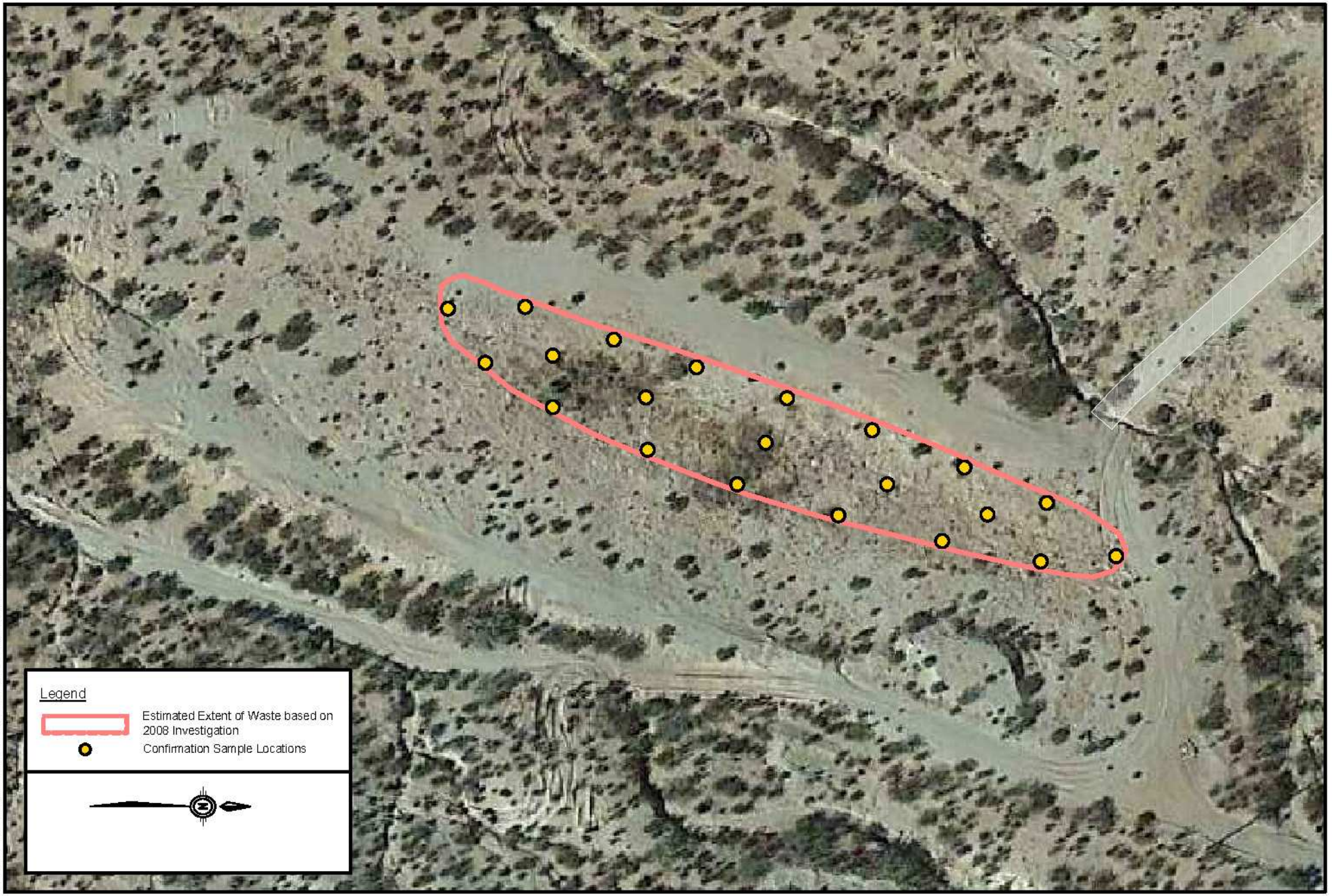
Malcolm Pirnie, 2009. *RCRA Facility Investigation Report, Oro Grande Landfill (SWMU 25/FTBL-14).* January.

Malcolm Pirnie, 2011. *Final Letter Report for the Cover and Borrow Area Investigation of the Oro Grande Landfill (SWMU-25/FTBL-14).* November.

NMED, 2015, *Risk Assessment Guidance for Site Investigations and Remediation*. July.

FIGURES

Figure 1: Confirmation Sample Locations



CAPE

18207 Bluemark Drive
San Antonio, TX 78257
(210) 877-8111

U.S. ARMY

MULTIPLE SITES AT FORT BLISS, TEXAS

PROJECT NAME

OROGRANDE LANDFILL - FTBL 14
US DEPARTMENT OF THE ARMY
FORT BLISS, TX

SHEET TITLE

CONFIRMATION SAMPLE LOCATIONS

REVISIONS:

No.	Date	By	Chk	Remarks

CONTRACT NO: W91ZLK-13-D0003	JOB NO: 21003.003
CHECKED BY: M.MILLER	DRAWN BY: C.RIOS
REVIEWED BY: S.MOOREHEAD	DATE: SEP. 2017
SCALE: AS SHOWN	FILE NAME: OG Fig1 Sample locations Map_SAP R2

SHEET NUMBER:

FIGURE 1

\\10.10.50.9\sanant\Projects\Army\ERM\TO 0003 Fort Bliss\3.3 Plans\AutoCad\Orogrande\SAP\Figures\OG Fig1 Sample Locations Map_SAP R2.dwg

TABLES

Table 2-1
Sample Summary Table
Sampling and Analysis Plan
Oro Grande Landfill Remedial Action Work Plan

Sampling Location	Matrix	Analytical Group	Number of Samples	Rationale for Sampling Location
Excavation Base and Sidewalls	Soil	Volatile organic compounds (VOCs), Semi-volatile organic compounds (SVOCs), metals, pesticides, herbicides, polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons-diesel range organics (TPH-DRO) (reporting NMED SSL list of contaminants for each analytical group)	At least 21 (Additional 3 per area of contamination, if discovered)	Delineation and Confirmation
Excavated Contaminated Soil and/or Debris (if discovered)	Soil / Debris	Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP SVOCs, TCLP Pesticides, TCLP Herbicides, PCBs, TPH-DRO, Asbestos, Reactivity, Paint Filter test, selected as appropriate	To be calculated in accordance with EPA SW-846, Chapter 9	Waste Characterization
Segregated Soil for Reuse	Soil	VOCs, SVOCs, metals, pesticides, herbicides, PCBs, and TPH-DRO (reporting NMED SSL list of contaminants for each analytical group)	1 per 500 banked cubic yards (BCY)	Clean Soil Confirmation
Borrow Soil for Backfill	Soil	VOCs, SVOCs, metals, pesticides, herbicides, PCBs, and TPH-DRO (reporting NMED SSL list of contaminants for each analytical group)	1 per 500 BCY	Certification of Clean Backfill

Table 2-2
Analytical Summary Table
Sampling and Analysis Plan
Oro Grande Landfill Remedial Action Work Plan

Matrix	Analytical Group	Analytical and Preparation Method/ SOP Reference	Container	Sample Volume	Preservation Requirements	Preparation Holding Time	Analytical Holding Time
Solid	VOCs	SW-846 5030/8260B	Encore or other sampling device - (3) 40-mL glass + (1) 2 oz glass jar	5 grams per 40 mL vial	Cool to 0-6°C, methanol and sodium bisulfate	48 hours	48 hours
Solid	SVOCs	SW-846 3550C/8270D	(1) 4 oz glass jar	30 grams	Cool to 0-6°C	14 days	40 days
Solid	ICP Metals	SW-846 3010A/6010C	(1) 8 oz glass jar	30 grams	Cool to 0-6°C	180 days	180 days
Solid	Mercury	SW-846 3015A/7471B		30 grams	Cool to 0-6°C	28 days	28 days
Solid	Pesticides	SW-846 3550/8081B	(1) 8 oz glass jar	30 grams	Cool to 4°C	14 days	40 days
Solid	Herbicides	SW-846 3550/8151A		30 grams	Cool to 4°C	14 days	40 days
Solid	Polychlorinated biphenyls (PCBs)	SW-846 3550/8082A	(1) 4 oz jar	30 grams	Cool to 0-6°C	14 days	40 days
Solid	Total petroleum hydrocarbons – Gasoline range organics (TPH-GRO)	SW-846 3550/8015	(1) 4 oz jar	30 grams	Cool to 0-6°C	14 days	40 days
Solid	Total petroleum hydrocarbons – Diesel range organics (TPH-DRO)	SW-846 3550/8015	(1) 4 oz jar	30 grams	Cool to 0-6°C	14 days	40 days
Waste	TCLP VOCs TCLP SVOCs TCLP Metals TCLP Pesticides TCLP Herbicides	SW-846 1311/8260B SW-846 1311/8270C SW-846 1311/6010C/7470A SW-846 1311/8081B SW-846 1311/8151A	16 oz glass jar	For full TCLP analyses - collect a TOTAL of 150 grams minimum	Cool to 0-6°C	VOC, SVOC, Pesticides, Herbicides 14 Days Metals, Mercury 28 days else 6 months	VOC, SVOC, Pesticides, Herbicides 14 Days Metals, Mercury 28 days else 6 months
Waste	TPH	SW-846 3550/8015	(1) 4 oz jar	30 grams	Cool to 0-6°C	14 days	40 days
Waste	PCBs	SW-846 3550/8082A	(1) 4 oz jar	30 grams	Cool to 0-6°C	14 days	40 days
Waste	Strontium	EPA 905.0 Mod/DOE, RP501 Rev. 1 Mod	(1) 4 oz jar	30 grams	NA	NA	28 Days
Waste	Reactivity	Chapter 7, 9012B, 9034	(1) 4 oz jar	30 grams	NA	NA	28 Days
Waste	Corrosivity		(1) 4 oz jar	30 grams	NA	NA	28 Days
Waste	Ignitability		(1) 4 oz jar	30 grams	NA	NA	28 Days
Waste	Paint Filter	SW-846 9095			NA	NA	28 Days
Waste	Asbestos	EPA-LIBBY-03 (TEM)	(1) 4 oz glass jar	30 grams	NA	NA	NA

VOCs – Volatile organic compounds
SVOCs – Semivolatile organic compounds

mL – milliliter
oz – ounce
^{o}C – degrees Celsius
ICP – Inductively-coupled plasma
TCLP – Toxicity Characteristic Leaching Procedure
TEM – Transmission Electron Microscopy

Table 2-3
IDW Analytical Method and Sample Bottle Requirements

Parameter	Analytical Method	Bottle Requirement	Preservative
TCLP VOCs	SW1311/8260B	(3) 40-milliliter glass vials	Methanol (1) and $NaHSO_4$ (2)
TCLP VOCs	SW1311/8260B	(1) 4-oz glass jar	Ice
TCLP SVOCs	SW1311/8270D	(1) 8-oz glass jar	Ice
TPH-DRO	SW 3541/8015	(1) 8-oz glass jar	Ice
TCLP Metals	SW1311/6010C	(1) 4-oz glass jar	Ice
PCBs	SW8082A	(1) 4-oz glass jar	Ice
Pesticides/ Herbicides	SW8081B/SW8151A	(1) 8-oz glass jar	Ice
Ignitability	SW1010/1020	(1) 4-oz glass jar	None
Corrosivity	SW9040/9045	(1) 4-oz glass jar	None
Reactivity	SW846 Chapter 7	(1) 4-oz glass jar	None

Notes:

IDW = investigative-derived waste

oz = ounce

SVOC = semivolatile organic compound

TCLP = toxicity characteristic leaching procedure

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

APPENDIX E

WASTE CHARACTERIZATION SAMPLING ANALYTICAL RESULTS

DATA EVALUATION REPORT
CHEMISTRY SERVICES

DATE: August 30, 2017

RECIPIENT: (b) (6) [redacted]

PREPARER: (b) (6) [redacted]

COPY: chemistrysvcs@cape-inc.com

PROJECT #: 21003.003.110

PROJECT NAME: Ft. Bliss Oro Grande Landfill

DESCRIPTION: Waste Characterization Samples

ITEMS SUBMITTED UNDER THIS TRANSMITTAL:

ITEM CLASSIFICATION	ITEM DESCRIPTION	# OF COPIES
☐ Original Analytical Data (Hardcopy/CD)		
☒ Lab Reports – Annotated Form 1s	**Twenty-three soil samples and three trip blank soils, collected July 25, 2017 and analyzed by SGS Accutest Southeast, Orlando, FL and GEL Laboratories, Charleston, SC (radiological only)**	1
☐ EDDs		
☐ Quality Assurance Reports		
☐ Planning Document		
☐ Proposal Information		
☐ Lab SOW and Pricing		

ACTION CODE FOR RECIPIENT:

☒ For Recipient Use
☐ Revise and Resubmit to Preparer
☐ No exception taken
☐ Revise as noted

(b) (6) [redacted]
PREPARER SIGNATURE

PREPARER COMMENTS:

This report covers four data packages, as follows:

- Thirteen soil samples and one trip blank soil sample collected on July 25, 2017, and reported in SDG FA46136. Samples FA46136-02 through -14 correspond to field sample numbers T030GL-WC04 through -16.
- Three soil samples and one trip blank soil sample collected on July 24, 2017, and reported in SDG FA46145. Samples FA46145-02 through -04 correspond to field sample numbers T030GL-WC01 through -03.
- Seven soil samples and one trip blank soil sample collected on July 26, 2017, and reported in SDG FA46163. Samples FA46163-02 through -08 correspond to field sample numbers T030GL-WC17 through -23.
- Three soil samples collected on July 25, 2017, and reported in GEL SDG 428907. The samples 428907-001 through -003 correspond to SGS Accutest samples FA46136-2, -10 and -11 and to field sample numbers T030GL-WC04, -12 and -13, respectively.

The attached chain-of-custody forms present a summary of the CAPE identification numbers, data of collection, sample matrix, and the analyses requested.

The samples were shipped to SGS Accutest Southeast, Orlando, FL for analysis. The radiological analyses were subcontracted to GEL Laboratories, LLC, Charleston, SC.

The samples were analyzed for the following methods:

Toxicity Characteristic Leaching Procedure (TCLP) Volatile Organic Compounds (VOCs) by SW-846 Method 8260B;
TCLP Semivolatile Organic Compounds (SVOCs) by SW-846 Method 8270D;
Organochlorine Pesticides by SW-846 Method 8081B;
Polychlorinated Biphenyls (PCBs) by SW-846 Method 8082A;
Chlorinated Herbicides by SW-846 Method 8151A;
TCLP Metals/Mercury by SW-846 Methods 6010C/7470A;
Total Petroleum Hydrocarbons (TPH) by SW-846 Method 8015C;
Ignitability by EPA Method 1010;
Corrosivity by SW-846 Chapter 7 (7.1);
Reactive Cyanide/Sulfide by SW-846 Chapter 7 (7.2)
Percent Solids by Standard Methods 2540G;
Asbestos by EPA Method 600/R-93/116;
Gross Alpha / Beta Activity by EPA Method 900.0 / SW-846 9310 / Standard Methods 7110B (modified); and
Strontium 89 / 90 by EPA Method 905.0 (modified) / DOE RP 501 Revision 1 (modified).

EPA Level IV data packages were provided for review. SGS Accutest Southeast Laboratories followed method SW-846 1311 to prepare the samples for TCLP analysis. The soil trip blank samples were analyses for total VOCs, but only the TCLP target list of compounds were reported.

Data Validation Comments

Data validation was performed in accordance with the *U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0, July 2013; and,* a modified *USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review, September 2016.* When specific guidance was not available, the data was evaluated in a conservative manner consistent with USEPA standards using best professional judgement.

Results reported above the Detection Limits (DL) and below the Limit of Quantitation (LOQ) are qualified "J". Non-detected results are reported at the Limit of Detection with a "U" qualifier. In cases of blank contamination at concentrations high enough to compromise the reliability of the sample data, a "B" qualifier is applied to the result. A "UJ" qualification indicates a nondetect result at an estimated detection limit.

Any aspect of the data not discussed in this report should be considered qualitatively and quantitatively valid, as reported, based on the deliverables reviewed.

Comments specific to each of the individual data packages follow:

SDG FA46136

There were no problems that required qualification of data in the VOC trip blank soil sample. For soils FA46136-02 through -14, carbon tetrachloride was "UJ" qualified due to poor matrix spike/matrix spike duplicate (MS/MSD) recovery. Due to contamination in the associated laboratory (method) blank, the compound chloroform was qualified "B" in samples FA46136-12 through -14 (T030GL-WC14 through -16).

For TCLP SVOCs, poor precision (excessive RPDs) were noted in the MS/MSD for 2-methylphenol and 3&4-methylphenol. As a result, "UJ" data qualification was required for these compounds in FA46136-02 through -14. Note that the laboratory was unable to separate 3-methylphenol and 4-methylphenol and reported the sum of the two as 3&4-

methylphenol. Initial calibration verification criteria for 2,4,5- and 2,4,6-trichlorophenol and for pentachlorophenol were not met; "UJ" qualification was required for samples FA46136-02 through -14 as a result.

For TCLP Pesticides, Lindane in sample FA46136-13 (T030GL-WC15) was qualified "J" due to poor agreement between GC columns (quantitative uncertainty of the concentration).

For TCLP Herbicides, continuing calibration verifications indicated a change in instrument sensitivity for the compounds 2,4-D and 2,4,5-TP (Silvex), which were "UJ" qualified in samples FA46136-02 through -14 as a result.

For TPH-GRO (C10-C28), the MSD analysis had unacceptably poor recovery, and a continuing calibration verification sample indicated a change in instrument sensitivity. As a result, samples FA46136-02 through -14 were qualified "J."

There were no problems in the remaining analyses that required any qualification of data.

SDG FA46145

The VOC trip blank sample soil vials were not received at the laboratory within 48 hours of sample. As a result, there is a possibility of a low bias to the sample data for this sample. As all target compounds were nondetect, all results in this sample only (FA46145-01) are qualified "UJ." There were no problems that required any qualification of data in the TCLP VOCs for the remaining soil samples.

For TCLP SVOCs, the matrix spike/matrix spike duplicate (MS/MSD) analyses indicated poor precision (excessive RPDs) for 2-methylphenol and 3&4-methylphenol. As a result, "UJ" qualification of data was required for these compounds in samples FA46145-02 through -04. Note that the laboratory was unable to separate 3-methylphenol and 4-methylphenol and reported the sum of the two as 3&4-methylphenol.

For TCLP SVOCs, an initial calibration verification (ICV) failed criteria for 2,4,5- and 2,4,6-trichlorophenol and for pentachlorophenol. "UJ" qualification of these compounds was required in samples FA46145-02 through -04.

For TCLP Herbicides, continuing calibration verification indicated a change in instrument sensitivity for the compound 2,4-D. As a result, samples FA46145-02 through -04 were qualified "UJ" for this compound.

For TPH-GRO (C10-C28), the MSD analysis had unacceptably poor recovery, and a continuing calibration verification sample indicated a change in instrument sensitivity. As a result, samples FA46145-02 through -04 were qualified "J."

There were no problems in the remaining analyses that required any qualification of data.

SDG FA46163

There were no problems that required qualification of data in the VOC trip blank soil sample. Due to contamination in the associated laboratory (method) blank, the compound chloroform was qualified "B" in samples FA46163-02 through -06 (T030GL-WC17 through -21). In the same samples, benzene and tetrachloroethylene were "J" or "UJ" qualified (as appropriate) due to poor precision in the laboratory duplicate analysis.

For TCLP SVOCs, the blank spike (laboratory control sample, LCS) and/or matrix spike/matrix spike duplicate (MS/MSD) analyses indicated poor precision (excessive RPDs) for 2,4,5- and 2,4,6-trichlorophenol, pyridine and hexachloroethane. As a result, "UJ" data qualification was required for these compounds in samples FA46163-02 through -08. The laboratory was unable to separate 3-methylphenol and 4-methylphenol and reported the sum of the two as 3&4-methylphenol. Due to failures in continuing calibration verification (CCV) criteria for hexachlorobutadiene and 2,4-dinitrotoluene, "UJ" qualification was required for these compounds in samples FA46163-02 through -08.

For TPH-GRO (C10-C28), the MS/MSD analyses had unacceptably poor recovery, as did a surrogate recovery in sample FA46163-05 (T030GL-WC20). As a result, samples FA46163-02 through -08 were qualified "J." The GC data indicated additional hydrocarbons heavier than C28; as a result, the concentrations may be lower estimates of the contamination present, which is an additional reason for "J" qualification of these data.

There were no problems in the remaining analyses that required any qualification of data.

SDG 428907

For all radiological methods, sample preservation and holding times were acceptable. Instruments were acceptable calibrated. The method blank samples were acceptably free of contamination, and spiked sample recoveries were acceptable.

For the strontium isotope analyses, a false positive result was suspected for sample 428907-001 (T030GL-WC04), leading to a reanalysis of the sample. The results from the reanalysis are reported.

There were no problems in the radiological analyses that required any qualification of data.

Please see the attached data for your use and review. Note the data has undergone a data quality assessment and evaluation for the intended purpose of characterization for disposal only.

Enclosed results are Approved for Quality Assurance Release by: Albert Iannacone, August 30, 2017.

Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC-TB01	T030GL-WC01	T030GL-WC02	T030GL-WC03	T030GL03-WC-TB02	T030GL-WC04	T030GL-WC05
Lab Identification		**FA46145-1**	**FA46145-2**	**FA46145-3**	**FA46145-4**	**FA46136-1**	**FA46136-2**	**FA46136-3**
Date		**7/24/2017**	**7/24/2017**	**7/24/2017**	**7/24/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**
Matrix		**Trip Blank Soil**	**Soil**	**Soil**	**Soil**	**Trip Blank Soil**	**Soil**	**Soil**
Petroleum Hydrocarbons Method SW846 8015C		***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***
TPH-GRO (C6-C10)	--	2.5 U	2.2 U	2.7 U	2.9 U	2.5 U	2.3 U	2.6 U
TPH (C10-C28)	--	NA	**12 J**	**14.2 J**	**5.81 J**	NA	**3.19 J**	**71.6 J**
Volatiles Method SW846 8260B	***ug/Kg***	***ug/Kg***				***ug/Kg***		
Benzene	17,800	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
2-Butanone (MEK)	37,400,000	15 UJ	NA	NA	NA	15 U	NA	NA
Carbon Tetrachloride	10,700	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
Chlorobenzene	378,000	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
Chloroform	5,900	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
1,4-Dichlorobenzene	32,800	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
1,2-Dichloroethane	8,320	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
1,1-Dichloroethylene	440,000	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
Tetrachloroethylene	111,000	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
Trichloroethylene	6,770	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
Vinyl Chloride	742	2.0 UJ	NA	NA	NA	2.0 U	NA	NA
TCLP Volatiles Method SW846 8260B	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
Benzene	0.5	NA	**0.0153**	0.0050 U	0.0050 U	NA	0.0050 U	**0.0104**
2-Butanone (MEK)	200.0	NA	0.035 U	0.035 U	0.035 U	NA	0.035 U	0.035 U
Carbon Tetrachloride	0.5	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 UJ	0.0050 UJ
Chlorobenzene	100.0	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
Chloroform	6.0	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
1,4-Dichlorobenzene	7.5	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
1,2-Dichloroethane	0.5	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
1,1-Dichloroethylene	0.7	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
Tetrachloroethylene	0.7	NA	0.0050 U	0.0050 U	**0.0346**	NA	0.0050 U	**0.0299**
Trichloroethylene	0.5	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
Vinyl Chloride	0.2	NA	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U	0.0050 U
TCLP Semivolatiles Method 8SW846 8270D	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
2-Methylphenol	200	NA	0.010 UJ	0.010 UJ	0.010 UJ	NA	0.010 UJ	0.010 UJ
3&4-Methylphenol	200	NA	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 UJ	0.020 UJ
Pentachlorophenol	100	NA	0.10 UJ	0.10 UJ	0.10 UJ	NA	0.10 UJ	0.10 UJ
2,4,5-Trichlorophenol	400	NA	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 UJ	0.020 UJ
2,4,6-Trichlorophenol	2.0	NA	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 UJ	0.020 UJ
1,4-Dichlorobenzene	7.5	NA	0.020 U	0.020 U	0.020 U	NA	0.020 U	0.020 U
2,4-Dinitrotoluene	0.13	NA	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U
Hexachlorobenzene	0.13	NA	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U
Hexachlorobutadiene	0.5	NA	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U
Hexachloroethane	3.0	NA	0.020 U	0.020 U	0.020 U	NA	0.020 U	0.020 U
Nitrobenzene	2.0	NA	0.020 U	0.020 U	0.020 U	NA	0.020 U	0.020 U
Pyridine	5.0	NA	0.035 U	0.035 U	0.035 U	NA	0.035 U	0.035 U
TCLP Herbicides Method SW846 8151A	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
2,4-D	10.0	NA	0.025 UJ	0.025 UJ	0.025 UJ	NA	0.025 UJ	0.025 UJ
2,4,5-TP (Silvex)	1.0	NA	0.0025 U	0.0025 U	0.0025 U	NA	0.0025 UJ	0.0025 UJ

Notes

[1] New Mexico Environment Department (NMED) Residential Soil Screening Levels - July 2015

TCLP Limits: Title 40 Code of Federal Regulations (40 CFR) Part 261 Subpart C

U - Result is not detected UJ - Result is not detected at an estimated reporting limit

mg/L: milligrams per liter; mg/Kg: milligrams per kilogram

ug/Kg: micrograms per kilogram

Bold results indicate positively detected value

Highlighted results exceed the Regulatory Limits

Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC-TB01	T030GL-WC01	T030GL-WC02	T030GL-WC03	T030GL03-WC-TB02	T030GL-WC04	T030GL-WC05
Lab Identification		**FA46145-1**	**FA46145-2**	**FA46145-3**	**FA46145-4**	**FA46136-1**	**FA46136-2**	**FA46136-3**
Date		**7/24/2017**	**7/24/2017**	**7/24/2017**	**7/24/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**
Matrix		**Trip Blank Soil**	**Soil**	**Soil**	**Soil**	**Trip Blank Soil**	**Soil**	**Soil**
TCLP Pesticides Method SW846 8081B	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
gamma-BHC (Lindane)	0.4	NA	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U	0.000050 U
Chlordane	0.03	NA	0.00050 U	0.00050 U	0.00050 U	NA	0.00050 U	0.00050 U
Endrin	0.02	NA	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U	0.000050 U
Heptachlor	0.008	NA	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U	0.000050 U
Heptachlor epoxide	0.008	NA	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U	0.000050 U
Methoxychlor	10.0	NA	0.00010 U	0.00010 U	0.00010 U	NA	0.00010 U	0.00010 U
Toxaphene	0.5	NA	0.0038 U	0.0038 U	0.0038 U	NA	0.0038 U	0.0038 U
Polychlorinated Biphenyls (PCBs) Method SW846 8082A	***ug/Kg***		***ug/Kg***	***ug/Kg***	***ug/Kg***		***ug/Kg***	***ug/Kg***
Aroclor 1016	3,980	NA	11 U	13 U	13 U	NA	12 U	13 U
Aroclor 1221	1,810	NA	11 U	13 U	13 U	NA	12 U	13 U
Aroclor 1232	1,860	NA	11 U	13 U	13 U	NA	12 U	13 U
Aroclor 1242	2,430	NA	11 U	13 U	13 U	NA	12 U	13 U
Aroclor 1248	2,430	NA	11 U	13 U	13 U	NA	12 U	13 U
Aroclor 1254	1,140	NA	16 U	13 U	13 U	NA	12 U	**17.9 J**
Aroclor 1260	2,430	NA	16 U	13 U	13 U	NA	12 U	13 U
TCLP Metals Method SW846 6010C	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
Arsenic	5.0	NA	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U
Barium	100	NA	**0.57 J**	**0.40 J**	**0.63 J**	NA	**0.53 J**	**0.52 J**
Cadmium	1.0	NA	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U
Chromium	5.0	NA	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U
Lead	5.0	NA	**0.016 J**	**0.77**	0.020 U	NA	0.020 U	0.020 U
Selenium	1.0	NA	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U
Silver	5.0	NA	0.020 U	0.020 U	0.020 U	NA	0.020 U	0.020 U
TCLP Metals Method SW846 7470A	***mg/L***		***mg/L***	***mg/L***	***mg/L***		***mg/L***	***mg/L***
Mercury	0.2	NA	**0.00056 J**	**0.00059 J**	**0.00055 J**	NA	**0.00058 J**	**0.00062 J**
General Chemistry								
Corrosivity as pH (su)	<2, >12.5	NA	**8.3**	**7.7**	**8.0**	NA	**8.4**	**8.0**
Cyanide Reactivity (mg/Kg)	-	NA	0.76 U	0.84 U	0.85 U	NA	0.77 U	0.82 U
Ignitability (Flashpoint) (Deg. F)	<140	NA	>200	>200	>200	NA	>200	>200
Sulfide Reactivity (mg/Kg)	-	NA	51 U	56 U	57 U	NA	52 U	54 U
Asbestos Method EPA 600/R-93/116								
Asbestos	**--**	NA	ND	ND	ND	NA	ND	ND
Lab Identification							**428907001**	
GFPC Gross A/B Method EPA 900.0/SW846 9310/ SM 7110B Modified							***pCi/g***	
Alpha	**--**	NA	NA	NA	NA	NA	**10.5**	NA
Beta	**--**	NA	NA	NA	NA	NA	**21.3**	NA
GFPC, Sr89&Sr90 Method EPA 905.0 Modified/ DOE RP501 Rev 1 Modified							***pCi/g***	
Stronium-89	**--**	NA	NA	NA	NA	NA	-0.0582U	NA
Stronium-90	**--**	NA	NA	NA	NA	NA	0.239U	NA

Notes

[1] New Mexico Environment Department (NMED) Residential Soil Screening Levels - July 2015

TCLP Limits: Title 40 Code of Federal Regulations (40 CFR) Part 261 Subpart C

ND: None Detected U - Result is not detected

UJ - Result is not detected at an estimated reporting limit

mg/L: milligrams per liter; mg/Kg: milligrams per kilogram

ug/Kg: micrograms per kilogram

pCi/g: picocuries per gram

Bold results indicate positively detected value

Highlighted results exceed the Regulatory Limits

Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC06	T030GL-WC07	T030GL-WC08	T030GL-WC09	T030GL-WC10	T030GL-WC11	T030GL-WC12
Lab Identification		**FA46136-4**	**FA46136-5**	**FA46136-6**	**FA46136-7**	**FA46136-8**	**FA46136-9**	**FA46136-10**
Date		**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Petroleum Hydrocarbons Method SW846 8015C		***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***
TPH-GRO (C6-C10)	--	2.6 U	2.5 U	2.5 U	3.3 U	2.3 U	2.9 U	2.3 U
TPH (C10-C28)	--	**508 J**	**5.21 J**	**44.4 J**	**25.9 J**	**7.3 J**	**98.5 J**	**93 J**
Volatiles Method SW846 8260B	***ug/Kg***							
Benzene	17,800	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	37,400,000	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	10,700	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	378,000	NA	NA	NA	NA	NA	NA	NA
Chloroform	5,900	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	32,800	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	8,320	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	440,000	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethylene	111,000	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	6,770	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	742	NA	NA	NA	NA	NA	NA	NA
TCLP Volatiles Method SW846 8260B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Benzene	0.5	0.0050 U	0.0050 U	0.0050 U	**0.446**	0.0050 U	0.0050 U	0.0050 U
2-Butanone (MEK)	200.0	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
Carbon Tetrachloride	0.5	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ
Chlorobenzene	100.0	**0.0020 J**	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Chloroform	6.0	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
1,4-Dichlorobenzene	7.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
1,2-Dichloroethane	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
1,1-Dichloroethylene	0.7	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Tetrachloroethylene	0.7	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Trichloroethylene	0.5	0.0050 U	**0.0057 J**	**0.0066 J**	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Vinyl Chloride	0.2	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
TCLP Semivolatiles Method 8SW846 8270D	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
2-Methylphenol	200	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ
3&4-Methylphenol	200	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
Pentachlorophenol	100	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
2,4,5-Trichlorophenol	400	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
2,4,6-Trichlorophenol	2.0	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
1,4-Dichlorobenzene	7.5	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
2,4-Dinitrotoluene	0.13	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Hexachlorobenzene	0.13	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Hexachlorobutadiene	0.5	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Hexachloroethane	3.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Nitrobenzene	2.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Pyridine	5.0	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
TCLP Herbicides Method SW846 8151A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
2,4-D	10.0	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ
2,4,5-TP (Silvex)	1.0	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ

Notes

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Bold results indicate positively detected value

Highlighted results exceed the Regulatory Limits

Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC06	T030GL-WC07	T030GL-WC08	T030GL-WC09	T030GL-WC10	T030GL-WC11	T030GL-WC12
Lab Identification		**FA46136-4**	**FA46136-5**	**FA46136-6**	**FA46136-7**	**FA46136-8**	**FA46136-9**	**FA46136-10**
Date		**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
TCLP Pesticides Method SW846 8081B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
gamma-BHC (Lindane)	0.4	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Chlordane	0.03	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Endrin	0.02	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Heptachlor	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Heptachlor epoxide	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Methoxychlor	10.0	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	0.5	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U
Polychlorinated Biphenyls (PCBs) Method SW846 8082A	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***
Aroclor 1016	3,980	62 U	12 U	12 U	14 U	12 U	13 U	59 U
Aroclor 1221	1,810	62 U	12 U	12 U	14 U	12 U	13 U	59 U
Aroclor 1232	1,860	62 U	12 U	12 U	14 U	12 U	13 U	59 U
Aroclor 1242	2,430	62 U	12 U	12 U	14 U	12 U	13 U	59 U
Aroclor 1248	2,430	62 U	12 U	12 U	14 U	12 U	13 U	59 U
Aroclor 1254	1,140	**105 J**	**22.7**	12 U	**12.5 J**	12 U	**9.5 J**	59 U
Aroclor 1260	2,430	**48.3 J**	12 U	12 U	14 U	12 U	13 U	59 U
TCLP Metals Method SW846 6010C	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Arsenic	5.0	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Barium	100	**0.61 J**	**0.45 J**	**0.56 J**	**0.28 J**	**0.52 J**	**0.81 J**	**0.57 J**
Cadmium	1.0	0.010 U	0.010 U	**0.0020 J**	**0.0030 J**	**0.0020 J**	**0.0020 J**	**0.0060 J**
Chromium	5.0	**0.012 J**	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Lead	5.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Selenium	1.0	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Silver	5.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
TCLP Metals Method SW846 7470A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Mercury	0.2	**0.00065 J**	**0.00065 J**	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
General Chemistry								
Corrosivity as pH (su)	<2, >12.5	**8.1**	**7.9**	**8.2**	**8.1**	**8**	**7.1**	**8.0**
Cyanide Reactivity (mg/Kg)	-	0.81 U	0.79 U	0.77 U	0.92 U	0.78 U	0.86 U	0.77 U
Ignitability (Flashpoint) (Deg. F)	<140	>200	>200	>200	>200	>200	>200	>200
Sulfide Reactivity (mg/Kg)	-	54 U	53 U	51 U	62 U	52 U	57 U	51 U
Asbestos Method EPA 600/R-93/116								
Asbestos	**--**	ND	ND	ND	ND	ND	ND	ND
Lab Identification								**428907002**
GFPC Gross A/B Method EPA 900.0/SW846 9310/ SM 7110B Modified								***pCi/g***
Alpha	**--**	NA	NA	NA	NA	NA	NA	**12.7**
Beta	**--**	NA	NA	NA	NA	NA	NA	**24.1**
GFPC, Sr89&Sr90 Method EPA 905.0 Modified/ DOE RP501 Rev 1 Modified								***pCi/g***
Stronium-89	**--**	NA	NA	NA	NA	NA	NA	-1.32U
Stronium-90	**--**	NA	NA	NA	NA	NA	NA	-0.626U

Notes

[1] New Mexico Environment Department (NMED) Residential Soil Screening Levels - July 2015

TCLP Limits: Title 40 Code of Federal Regulations (40 CFR) Part 261 Subpart C

ND: None Detected U - Result is not detected

UJ - Result is not detected at an estimated reporting limit

mg/L: milligrams per liter; mg/Kg: milligrams per kilogram

ug/Kg: micrograms per kilogram

pCi/g: picocuries per gram

Bold results indicate positively detected value

Highlighted results exceed the Regulatory Limits

Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC13	T030GL-WC14	T030GL-WC15	T030GL-WC16	T030GL-WC-TB03	T030GL-WC17
Lab Identification		**FA46136-11**	**FA46136-12**	**FA46136-13**	**FA46136-14**	**FA46163-1**	**FA46163-2**
Date		**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/26/2017**	**7/26/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Trip Blank Soil**	**Soil**
Petroleum Hydrocarbons Method SW846 8015C		***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***
TPH-GRO (C6-C10)	--	2.3 U	2.6 U	2.3 U	2.2 U	2.5 U	2.4 U
TPH (C10-C28)	--	**16.1 J**	**46.1 J**	**77.3 J**	**49.9 J**	NA	**82.5 J**
Volatiles Method SW846 8260B	***ug/Kg***					***ug/Kg***	
Benzene	17,800	NA	NA	NA	NA	2.0 U	NA
2-Butanone (MEK)	37,400,000	NA	NA	NA	NA	15 U	NA
Carbon Tetrachloride	10,700	NA	NA	NA	NA	2.0 U	NA
Chlorobenzene	378,000	NA	NA	NA	NA	2.0 U	NA
Chloroform	5,900	NA	NA	NA	NA	2.0 U	NA
1,4-Dichlorobenzene	32,800	NA	NA	NA	NA	2.0 U	NA
1,2-Dichloroethane	8,320	NA	NA	NA	NA	2.0 U	NA
1,1-Dichloroethylene	440,000	NA	NA	NA	NA	2.0 U	NA
Tetrachloroethylene	111,000	NA	NA	NA	NA	2.0 U	NA
Trichloroethylene	6,770	NA	NA	NA	NA	2.0 U	NA
Vinyl Chloride	742	NA	NA	NA	NA	2.0 U	NA
TCLP Volatiles Method SW846 8260B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
Benzene	0.5	0.0050 U	0.0050 U	0.0050 U	**0.298**	NA	0.0050 UJ
2-Butanone (MEK)	200.0	0.035 U	0.035 U	0.035 U	0.035 U	NA	0.035 U
Carbon Tetrachloride	0.5	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ	NA	0.0050 U
Chlorobenzene	100.0	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
Chloroform	6.0	0.0050 U	**0.0039 B**	**0.0032 B**	**0.0053 B**	NA	**0.0039 B**
1,4-Dichlorobenzene	7.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
1,2-Dichloroethane	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
1,1-Dichloroethylene	0.7	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
Tetrachloroethylene	0.7	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 UJ
Trichloroethylene	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
Vinyl Chloride	0.2	0.0050 U	0.0050 U	0.0050 U	0.0050 U	NA	0.0050 U
TCLP Semivolatiles Method 8SW846 8270D	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
2-Methylphenol	200	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	NA	0.010 U
3&4-Methylphenol	200	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 U
Pentachlorophenol	100	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	NA	0.10 U
2,4,5-Trichlorophenol	400	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 UJ
2,4,6-Trichlorophenol	2.0	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	NA	0.020 UJ
1,4-Dichlorobenzene	7.5	0.020 U	0.020 U	0.020 U	0.020 U	NA	0.020 U
2,4-Dinitrotoluene	0.13	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.010 UJ
Hexachlorobenzene	0.13	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.010 U
Hexachlorobutadiene	0.5	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.010 UJ
Hexachloroethane	3.0	0.020 U	0.020 U	0.020 U	0.020 U	NA	0.020 UJ
Nitrobenzene	2.0	0.020 U	0.020 U	0.020 U	0.020 U	NA	0.020 U
Pyridine	5.0	0.035 U	0.035 U	0.035 U	0.035 U	NA	0.035 UJ
TCLP Herbicides Method SW846 8151A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
2,4-D	10.0	0.025 UJ	0.025 UJ	0.025 UJ	0.025 UJ	NA	0.025 U
2,4,5-TP (Silvex)	1.0	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	NA	0.0025 U

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Fort Bliss

Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC13	T030GL-WC14	T030GL-WC15	T030GL-WC16	T030GL-WC-TB03	T030GL-WC17
Lab Identification		**FA46136-11**	**FA46136-12**	**FA46136-13**	**FA46136-14**	**FA46163-1**	**FA46163-2**
Date		**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/25/2017**	**7/26/2017**	**7/26/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Trip Blank Soil**	**Soil**
TCLP Pesticides Method SW846 8081B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
gamma-BHC (Lindane)	0.4	0.000050 U	0.000050 U	**0.000023 J**	0.000050 U	NA	0.000050 U
Chlordane	0.03	0.00050 U	0.00050 U	0.00050 U	0.00050 U	NA	R
Endrin	0.02	0.000050 U	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U
Heptachlor	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U
Heptachlor epoxide	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	NA	0.000050 U
Methoxychlor	10.0	0.00010 U	0.00010 U	0.00010 U	0.00010 U	NA	0.00010 U
Toxaphene	0.5	0.0038 U	0.0038 U	0.0038 U	0.0038 U	NA	R
Polychlorinated Biphenyls (PCBs) Method SW846 8082A	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***		***ug/Kg***
Aroclor 1016	3,980	12 U	12 U	12 U	12 U	NA	12 U
Aroclor 1221	1,810	12 U	12 U	12 U	12 U	NA	12 U
Aroclor 1232	1,860	12 U	12 U	12 U	12 U	NA	12 U
Aroclor 1242	2,430	12 U	12 U	12 U	12 U	NA	12 U
Aroclor 1248	2,430	12 U	12 U	12 U	12 U	NA	12 U
Aroclor 1254	1,140	**54.8**	12 U	12 U	12 U	NA	12 U
Aroclor 1260	2,430	12 U	12 U	12 U	12 U	NA	12 U
TCLP Metals Method SW846 6010C	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
Arsenic	5.0	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.050 U
Barium	100	**0.49 J**	**0.30 J**	**0.48 J**	**0.36 J**	NA	**0.45 J**
Cadmium	1.0	**0.0090 J**	**0.0030 J**	**0.0060 J**	**0.014 J**	NA	0.010 U
Chromium	5.0	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.050 U
Lead	5.0	0.020 U	0.020 U	0.020 U	0.020 U	NA	**0.50**
Selenium	1.0	0.050 U	0.050 U	0.050 U	0.050 U	NA	0.050 U
Silver	5.0	0.020 U	0.020 U	0.020 U	0.020 U	NA	**0.0080 J**
TCLP Metals Method SW846 7470A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***		***mg/L***
Mercury	0.2	0.0010 U	0.0010 U	0.0010 U	0.0010 U	NA	0.0010 U
General Chemistry							
Corrosivity as pH (su)	<2, >12.5	**8.0**	**8.5**	**7.9**	**8.0**	NA	**8.0**
Cyanide Reactivity (mg/Kg)	-	0.78 U	0.78 U	0.77 U	0.77 U	NA	0.77 U
Ignitability (Flashpoint) (Deg. F)	<140	>200	>200	>200	>200	NA	>200
Sulfide Reactivity (mg/Kg)	-	52 U	52 U	51 U	51 U	NA	52 U
Asbestos Method EPA 600/R-93/116							
Asbestos	**--**	ND	ND	ND	ND	NA	ND
Lab Identification		**428907003**					
GFPC Gross A/B Method EPA 900.0/SW846 9310/ SM 7110B Modified		***pCi/g***					
Alpha	**--**	**16.4**	NA	NA	NA	NA	NA
Beta	**--**	**22.1**	NA	NA	NA	NA	NA
GFPC, Sr89&Sr90 Method EPA 905.0 Modified/ DOE RP501 Rev 1 Modified		***pCi/g***					
Stronium-89	**--**	-0.873U	NA	NA	NA	NA	NA
Stronium-90	**--**	-0.655U	NA	NA	NA	NA	NA

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Waste Characterization Samples Collected July, 2017

Sample Identification	Regulatory Limits	T030GL-WC18	T030GL-WC19	T030GL-WC20	T030GL-WC21	T030GL-WC22	T030GL-WC23
Lab Identification		**FA46163-3**	**FA46163-4**	**FA46163-5**	**FA46163-6**	**FA46163-7**	**FA46163-8**
Date		**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Petroleum Hydrocarbons Method SW846 8015C		***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***	***mg/Kg***
TPH-GRO (C6-C10)	--	2.4 U	2.4 U	2.7 U	2.2 U	2.6 U	2.4 U
TPH (C10-C28)	--	**36.4 J**	**13.4 J**	**120 J**	**6.67 J**	**68.3 J**	**20.4 J**
Volatiles Method SW846 8260B	***ug/Kg***						
Benzene	17,800	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	37,400,000	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	10,700	NA	NA	NA	NA	NA	NA
Chlorobenzene	378,000	NA	NA	NA	NA	NA	NA
Chloroform	5,900	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	32,800	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	8,320	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	440,000	NA	NA	NA	NA	NA	NA
Tetrachloroethylene	111,000	NA	NA	NA	NA	NA	NA
Trichloroethylene	6,770	NA	NA	NA	NA	NA	NA
Vinyl Chloride	742	NA	NA	NA	NA	NA	NA
TCLP Volatiles Method SW846 8260B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Benzene	0.5	0.0050 UJ	0.0050 UJ	**0.0070 J**	0.0050 UJ	**0.231**	0.0050 U
2-Butanone (MEK)	200.0	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
Carbon Tetrachloride	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Chlorobenzene	100.0	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Chloroform	6.0	**0.0033 B**	**0.0032 B**	**0.0031 B**	**0.0032 B**	0.0050 U	0.0050 U
1,4-Dichlorobenzene	7.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
1,2-Dichloroethane	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
1,1-Dichloroethylene	0.7	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Tetrachloroethylene	0.7	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 UJ	0.0050 U	0.0050 U
Trichloroethylene	0.5	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
Vinyl Chloride	0.2	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U	0.0050 U
TCLP Semivolatiles Method 8SW846 8270D	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
2-Methylphenol	200	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
3&4-Methylphenol	200	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Pentachlorophenol	100	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
2,4,5-Trichlorophenol	400	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
2,4,6-Trichlorophenol	2.0	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
1,4-Dichlorobenzene	7.5	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
2,4-Dinitrotoluene	0.13	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ
Hexachlorobenzene	0.13	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Hexachlorobutadiene	0.5	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ
Hexachloroethane	3.0	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ	0.020 UJ
Nitrobenzene	2.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Pyridine	5.0	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ
TCLP Herbicides Method SW846 8151A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
2,4-D	10.0	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
2,4,5-TP (Silvex)	1.0	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U

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Sample Identification	Regulatory Limits	T030GL-WC18	T030GL-WC19	T030GL-WC20	T030GL-WC21	T030GL-WC22	T030GL-WC23
Lab Identification		**FA46163-3**	**FA46163-4**	**FA46163-5**	**FA46163-6**	**FA46163-7**	**FA46163-8**
Date		**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**	**7/26/2017**
Matrix		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
TCLP Pesticides Method SW846 8081B	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
gamma-BHC (Lindane)	0.4	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Chlordane	0.03	R	R	R	R	R	R
Endrin	0.02	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Heptachlor	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Heptachlor epoxide	0.008	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U	0.000050 U
Methoxychlor	10.0	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U
Toxaphene	0.5	R	R	R	R	R	R
Polychlorinated Biphenyls (PCBs) Method SW846 8082A	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***	***ug/Kg***
Aroclor 1016	3,980	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1221	1,810	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1232	1,860	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1242	2,430	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1248	2,430	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1254	1,140	12 U	12 U	52 U	12 U	12 U	50 U
Aroclor 1260	2,430	12 U	12 U	52 U	12 U	12 U	50 U
TCLP Metals Method SW846 6010C	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Arsenic	5.0	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Barium	100	0.050 U	**0.58 J**	**0.45 J**	0.050 U	**0.42 J**	**0.39 J**
Cadmium	1.0	0.010 U	0.010 U	**0.0030 J**	0.010 U	0.010 U	0.010 U
Chromium	5.0	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Lead	5.0	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.013 J**
Selenium	1.0	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Silver	5.0	0.020 U	0.020 U	0.020 U	**0.0080 J**	0.020 U	**0.0080 J**
TCLP Metals Method SW846 7470A	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***	***mg/L***
Mercury	0.2	0.0010 U	0.0010 U	**0.0020 J**	0.0010 U	0.0010 U	0.0010 U
General Chemistry							
Corrosivity as pH (su)	<2, >12.5	**8.3**	**7.9**	**8.8**	**8.0**	**7.9**	**7.9**
Cyanide Reactivity (mg/Kg)	-	0.77 U	0.77 U	0.84 U	0.77 U	0.78 U	0.77 U
Ignitability (Flashpoint) (Deg. F)	<140	>200	>200	>200	>200	>200	>200
Sulfide Reactivity (mg/Kg)	-	52 U	51 U	56 U	52 U	52 U	52 U
Asbestos Method EPA 600/R-93/116							
Asbestos	**--**	ND	ND	ND	ND	ND	ND
Lab Identification							
GFPC Gross A/B Method EPA 900.0/SW846 9310/ SM 7110B Modified							
Alpha	**--**	NA	NA	NA	NA	NA	NA
Beta	**--**	NA	NA	NA	NA	NA	NA
GFPC, Sr89&Sr90 Method EPA 905.0 Modified/ DOE RP501 Rev 1 Modified							
Stronium-89	**--**	NA	NA	NA	NA	NA	NA
Stronium-90	**--**	NA	NA	NA	NA	NA	NA

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